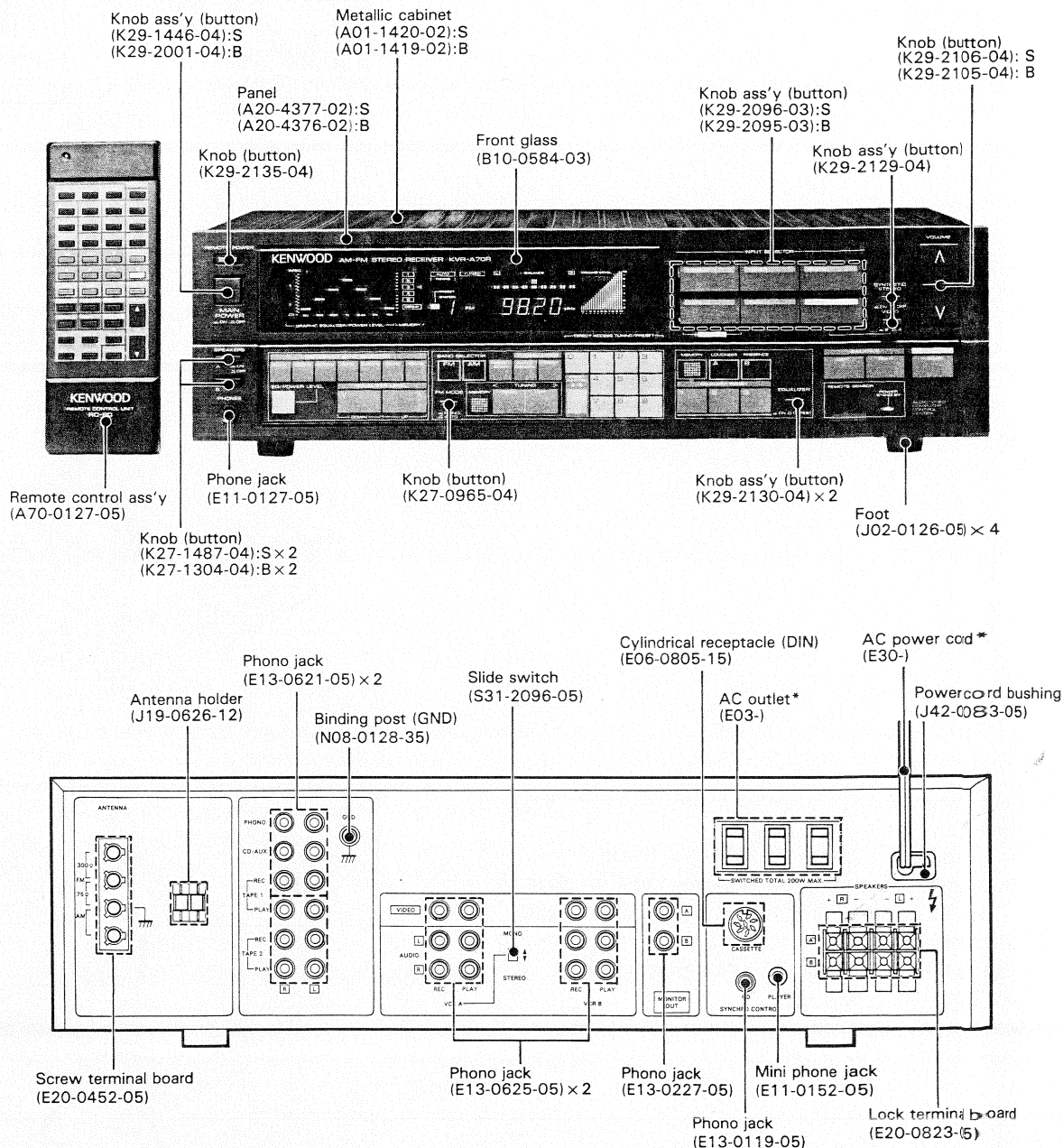


RXB 116

KENWOOD KVR-A70R

AM-FM STEREO RECEIVER

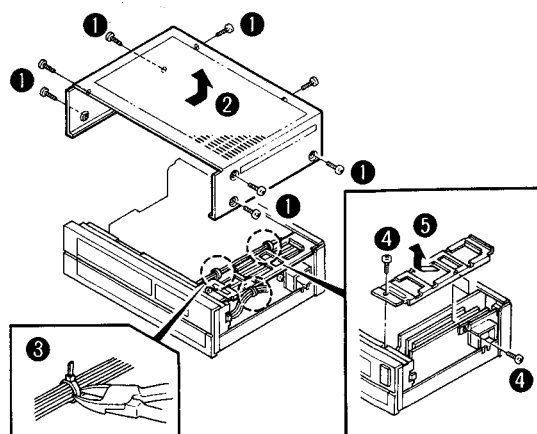


Note:
The circuit description of this Service Manual should be applied for both KVR-A90R and KR-A70.

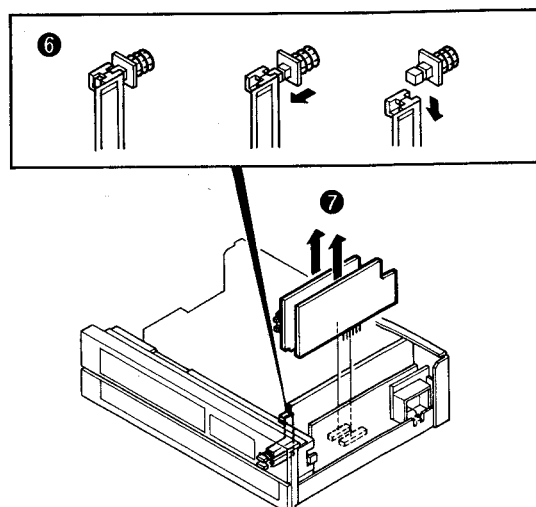
* Refer to parts list on page 40.
Photo is KVR-A70R (Black version).
S: Silver version
B: Black version.

DISASSEMBLY FOR REPAIR

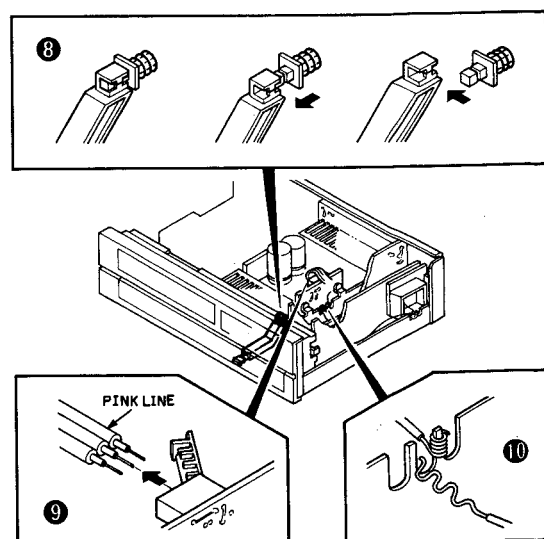
1. Remove 8 screws and remove the metallic cabinet (①, ②).
 2. Cut the wire bands (③).
 3. Remove 1 screw retaining the frame to the sub panel and 1 screw at the side (④).
- Slide out the frame as shown by the arrow (⑤).



4. Take the knob joints from the SYNTHETIC STEREO, VIDEO switches by the following procedures (⑥).
 - a. Pull out the knob joint frontward till it stops.
 - b. Slide the knob joint downward so that the switch shaft can be relieved from the cut part of the knob joint.
5. Pull out the video control pcb (X14-1790-11) (A/2) and receiver pcb (X14-1780-11) (D/5) (⑦).

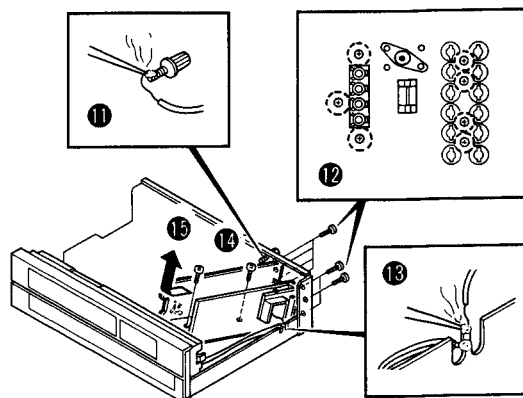


6. Take the knob joints from the EQUALIZER switches by the following procedures (⑧).
 - a. Pull out the knob joint frontward till it stops.
 - b. Slide the knob joint leftward so that the switch shaft can be relieved from the cut part of the knob joint.
7. Disconnect the parallel cord from receiver pcb (X14-1780-11) (A/5) to power amp pcb (XO7-2220-11) (B/6) (⑨).
8. Unwrap the ground lead from the receiver pcb (X14-1780-11) (A/5) (⑩).

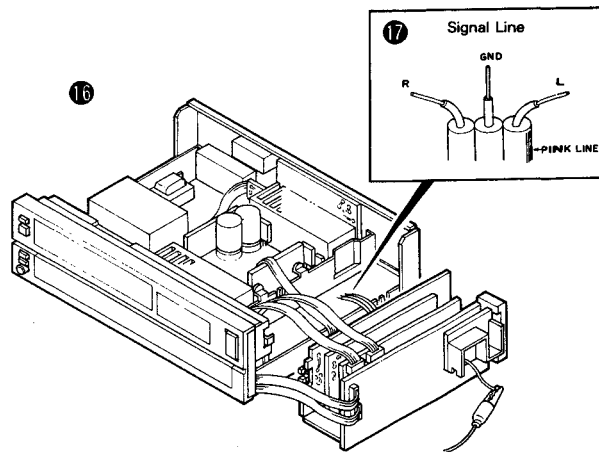


DISASSEMBLY FOR REPAIR

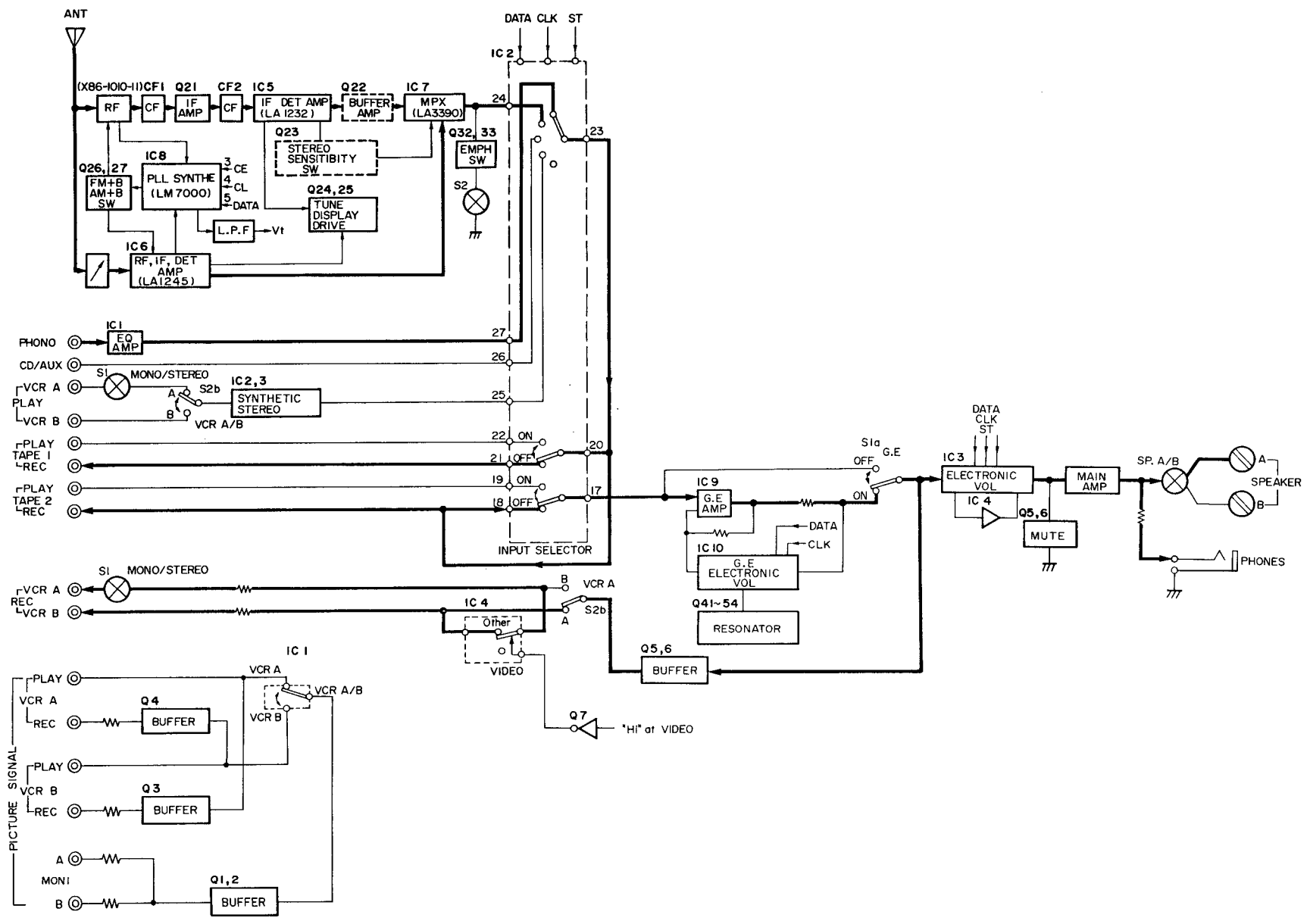
9. Unsolder the ground lead to the GND terminal (11).
10. Remove 7 screws retaining the antenna terminal and phono jacks (12).
11. Unsolder the ground lead from receiver pcb (X14-1780-11) (C/5) (13).
12. Remove 2 screws retaining the receiver pcb (X14-1780-11) (B/5) (14). This receiver pcb will be called mother pcb hereinafter.
13. Disconnect coaxial cable from coaxial receptacle. Lift the front side of the mother pcb and take it out to the side (15).



14. Plug in the video control pcb (X14-1790-11) (A/2) and receiver pcb (X14-1780-11) (D/5), once taken out in step 5, back to the mother pcb (16).
15. The KVR-A70R can be checked at this condition by grounding the ground leads which were taken off from the chassis.
The parallel cords disconnected in step 7 is a signal line to the power amp pcb (17).



BLOCK DIAGRAM



CIRCUIT DESCRIPTION

Power amplifier unit (X07-2220-11)

Components	Functions	Operations
Q1 - Q16	Main amp, (voltage amp)	
Q17 - Q20	Bias, temperature compensation	
Q21 - Q24	Driver stage	
Q25 - Q28	Final stage	
Q29, Q30, Q33	4 Ω limiter circuit	
Q31, Q32	Overload detection	
Q34 - Q49	Constant-voltage power regulation and timing circuitry	
Q50 - Q52	Power supply relay drive circuit	
IC1	Output relay drive, protection	
IC2	Remote control pre-amp	

Display unit (X14-1770-11)

Components	Functions	Operations
IC1 (μ PD7519G-172-36)	Display, control	
IC2 (LC7565)	Graphic equalizer display	
IC3, IC4 (μ PD4028BC)	Decoder of 4 to 10	
Q1 - Q3 (2SA933)	Switching circuit	
Q4 (2SC1845)	Volume control circuit	Outputs control signal for muting when the volume is minimum.
Q5 - Q9 (2SC945)	Current buffer	
Q10 - Q17 (2SC945)	STROBE/DATA/CLK control	Differentiates the STROBE signal and transmits the DATA and CLK signals using the differentiated signal.
Q18 (2SC945)	Tuner control	

Receiver unit (X14-1780-11)

Components	Functions	Operations
Q1 - Q4	EQ amp 1st stage	
Q5, Q6	Muting transistors	ON when a selector switch (except TAPE-2) is operated or when the volume is set to $-\infty$.
Q7	Muting transistor driver	
Q21	IF amplifier	
Q22	Buffer	
Q23	Stereo sensitivity adjustment (E type)	Transistor ON with ANT input at 22 to 23 dB.
Q24	Tuning display drive	Q24 OFF during tuning.
Q26, Q27	AM + B/FM + B switching	Q26: FM + B, Q27: AM + B
Q28, Q29	Synthesizer LPF	
Q30	Ripple filter	

CIRCUIT DESCRIPTION

Components	Functions	Operations
Q31	+ 5 V AVR	
Q32, Q33	Emphasis switching transistors (U type)	Transistor ON at 75 μ s
Q41 - Q54	Semiconductor inductor	
Q55	Level shifting	
Q56	Constant-voltage regulated power supply (7 V)	
IC1	EQ amplifier	
IC2	Input selector application	Analog switch
IC3	Electronic volume	
IC4	Buffer amplifier	
IC5	FM IF detection	
IC6	AM	
IC7	MPX	
IC8	PLL synthesizer	
IC9	Graphic equalizer amplifier	
IC10	Graphic equalizer electronic volume	

Video control unit (X14-1790-11)

Components	Functions	Operations
Q1 - Q4	Video signal buffer	
Q5, Q6	Audio buffer	
Q7	Level shifting and inversion	
IC1	Video signal switching	
IC2, IC3	Synthetic stereo	
IC4	Audio REC switching circuit	Switches between 1 - 2 and 10 - 11: Open in VIDEO mode, Short-circuited in modes other than VIDEO.

CIRCUIT DESCRIPTION

Electronic volume: IC3 (TC9176P)

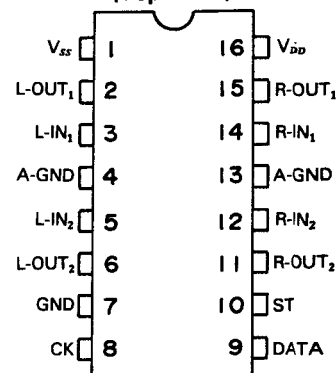
The TC9176P is an electronic volume specially developed for audio equipment.

The volume and balance can be controlled by inputting external serial data.

- Volume control possible in 40 steps; 0 dB to -76 dB in 2 dB steps plus $-\infty$.
- Built-in L and R channel volumes can be controlled independently, making possible the balance control function.

Pin configuration

TC9176P (Top View)



Functions of terminals (TC9176P)

No.	Symbol	Functions	Remarks
2 15	L-OUT1 R-OUT1	10 dB step attenuator output. Signals applied to IN are attenuated into 8 steps; from 0 to -70 dB in 10 dB steps.	
3 14	L-IN1 R-IN1	10 dB step attenuator input	
4 13	A-GND	AC ground terminals	
5 12	L-IN2 R-IN2	2 dB attenuator input	
6 11	L-OUT2 R-OUT2	2 dB attenuator output. Signals applied to IN are attenuated in 5 steps; from 0 to 8 dB in 2 dB steps.	
9	DATA	Attenuation/channel selection data input. The 20 bit data is input with the CK signal.	
8	CK	Clock input Clock input is used to fetch the data input from the DATA terminal.	- dc -
10	ST	Strobe input The attenuation/channel selection data input from the DATA and CK terminals are latched when the level of this terminal becomes "H". Old data is not changed when "H" level is not applied to this terminal.	- dc -
16 7 1	V _{DD} GND V _{SS}	(+) power supply terminal Ground terminal (-) power supply terminal	

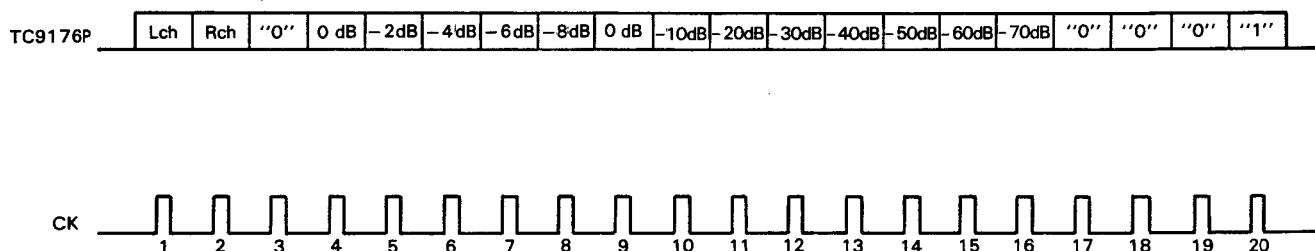
CIRCUIT DESCRIPTION

Operation description

Setting the amount of attenuation

Desired attenuation data can be input to the TC9176P via the DATA, CK and ST terminals. This data consists of 20 bits.

(As the TC9176P is not provided with loudness control, the level of the 3rd bit is always "L".)



For example, when a data (11001000001000000001) is input, the amount of attenuation is -22 dB.

Data bits 1 and 2 are used to select the L and R channels.

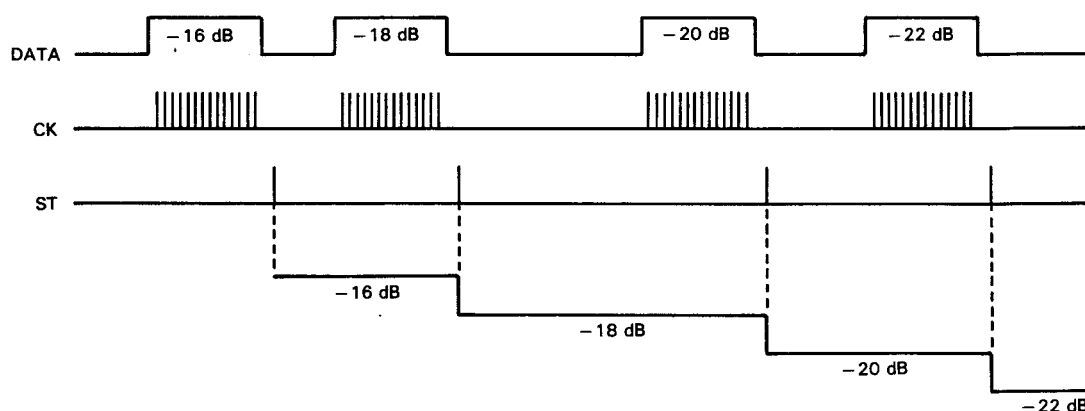
With the TC9176P, the 3rd bit is always "0".

Bits 4 to 8 sets the 2 dB step attenuator and bits 9 to 16 sets the 10 dB step attenuator.

Bits 17 to 20 are chip select bits. With the TC9176P, selection is performed by (0001) and it is not operative with bits other than (0001).

-∞ attenuation refers to the data for -78 dB. Consequently, one step above -∞ is -76 dB.

All changes to newly input data are synchronized with the rises of ST signal.

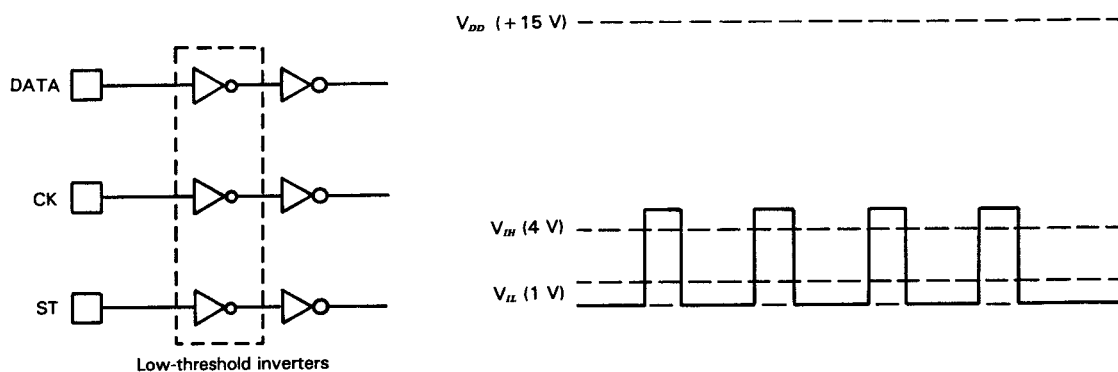


CIRCUIT DESCRIPTION

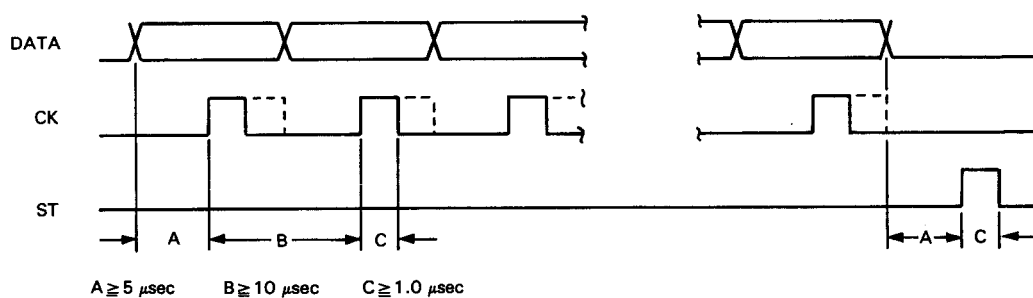
DATA, CK and ST inputs

Although the TC9176P usually operates on two power supplies (+) and (−), the DATA, CK and ST inputs are operated only with the (+) power supply because it incorporates a level shifter.

The input inverters for these three input terminals have low input threshold voltages and operate on the 5 V logic level.



DATA, CK and ST are input at timings shown below.



CIRCUIT DESCRIPTION

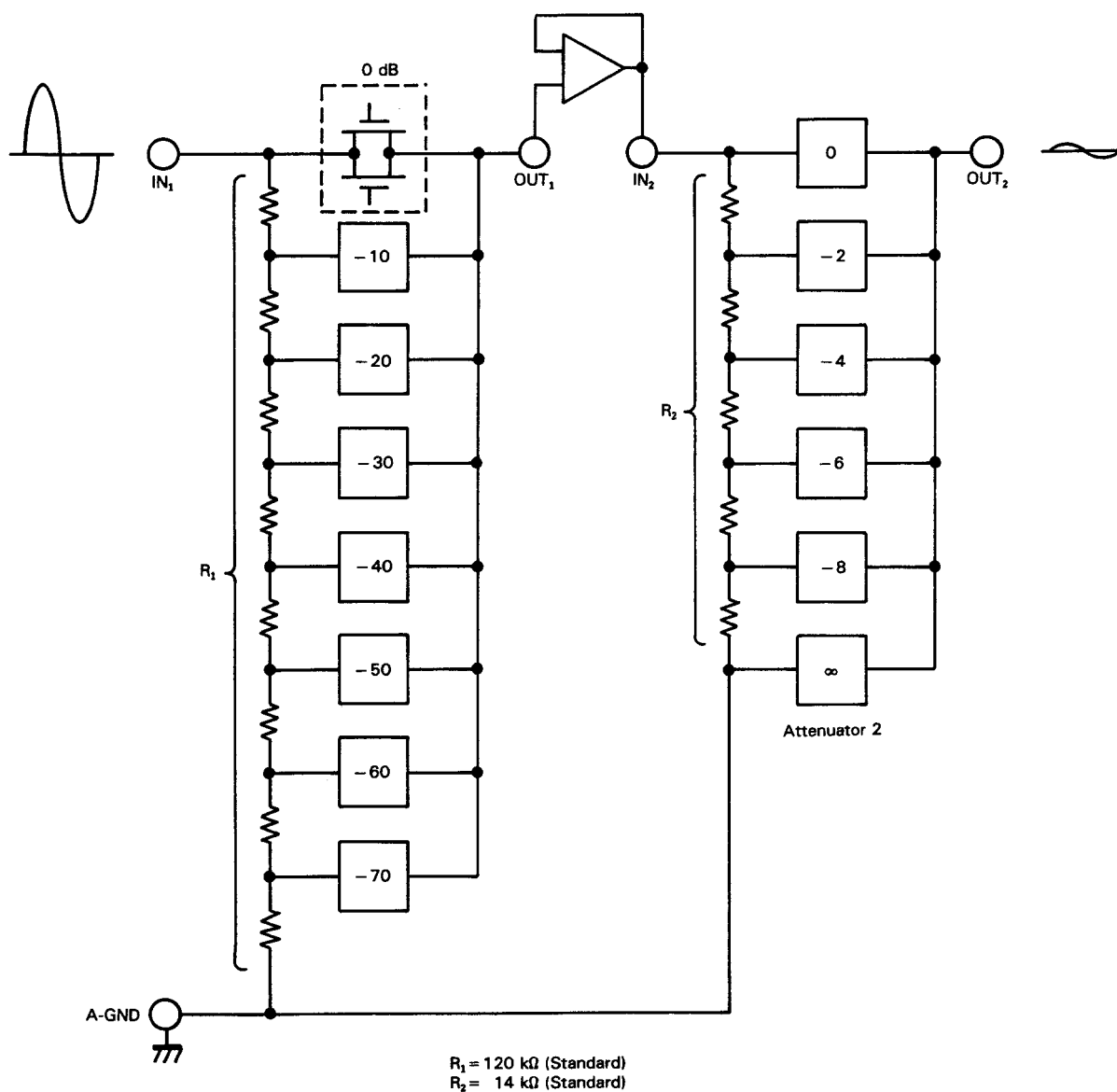
Attenuators

The attenuator section consists of diffused resistor arrays and analog switches.

Attenuator 1 allows attenuation from 0 to 70 dB in 10 dB

steps and Attenuator 2 attenuation from 0 to 8 dB in 2 dB steps. Together, a total attenuation from 0 to 76 dB is possible in 2 dB steps.

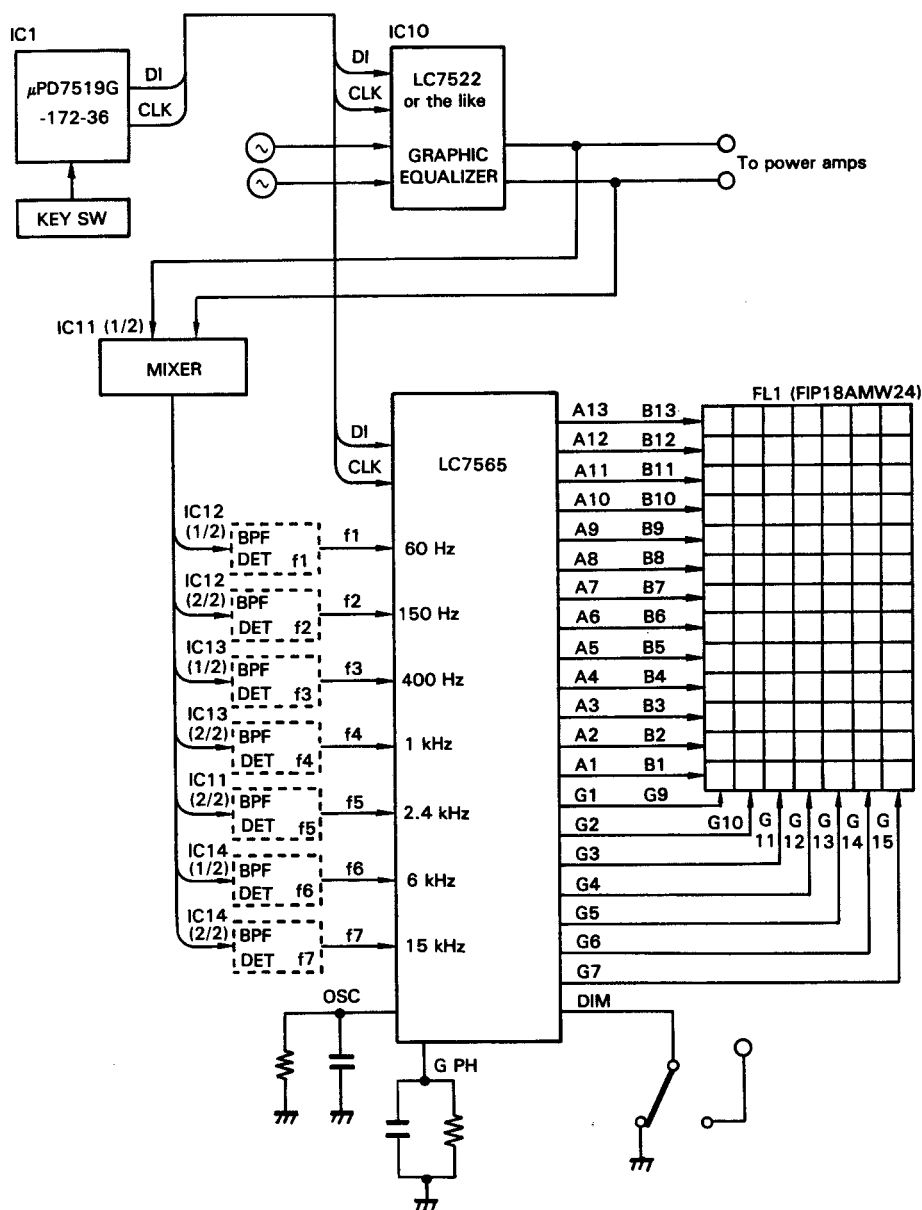
Data Codes



CIRCUIT DESCRIPTION

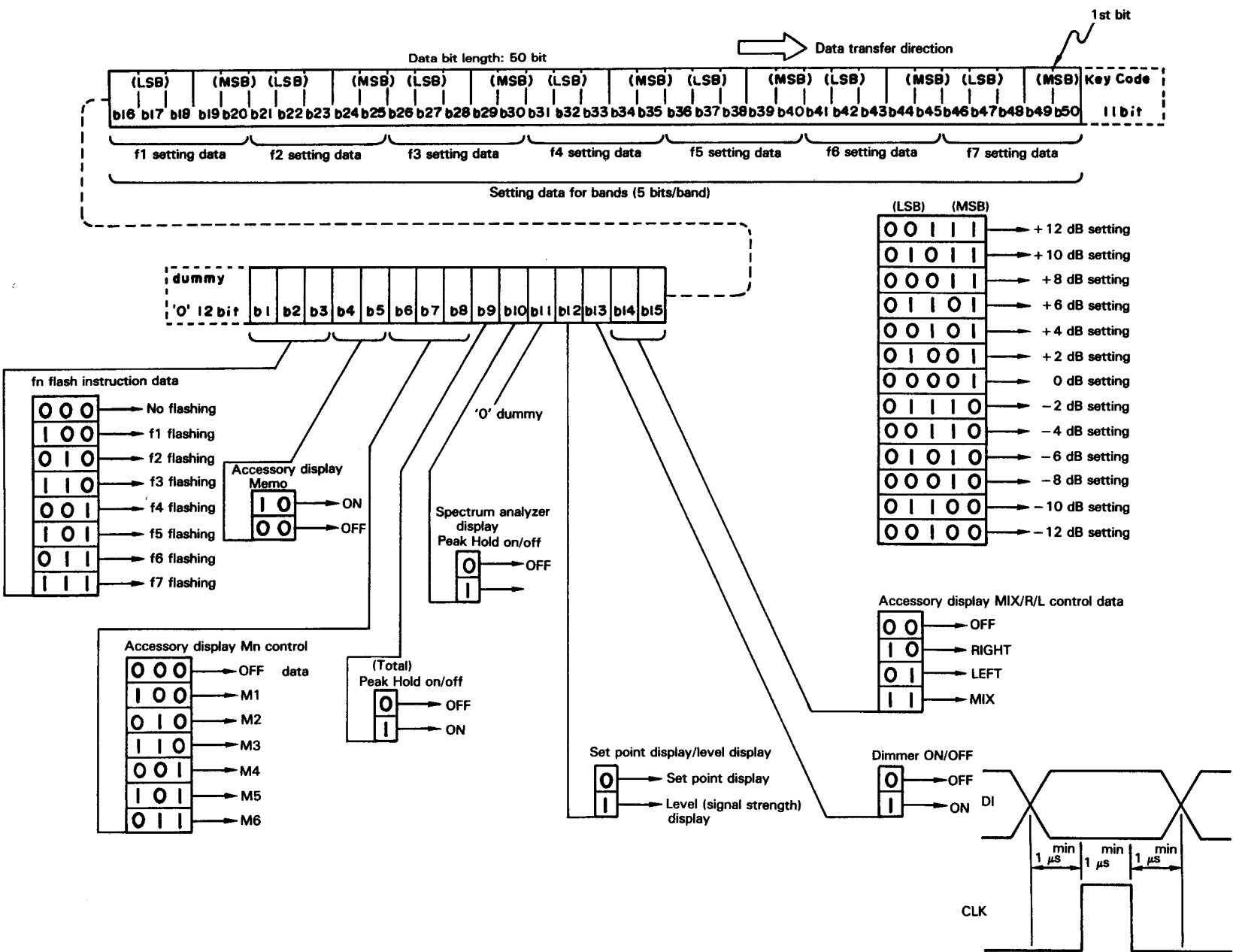
FLT Driver: IC 2 (LC7565)

Fluorescent display tube driver for display of graphic equalizer
LC7522





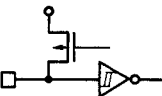


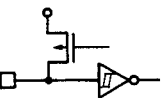
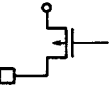
CIRCUIT DESCRIPTION

Data codes



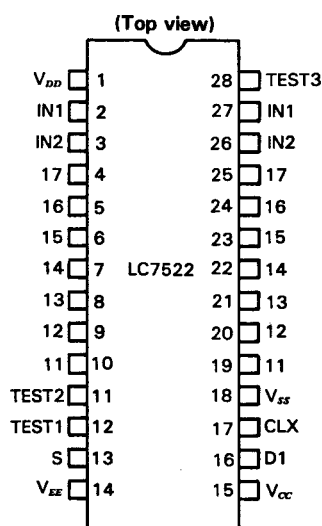
CIRCUIT DESCRIPTION

Description of terminals

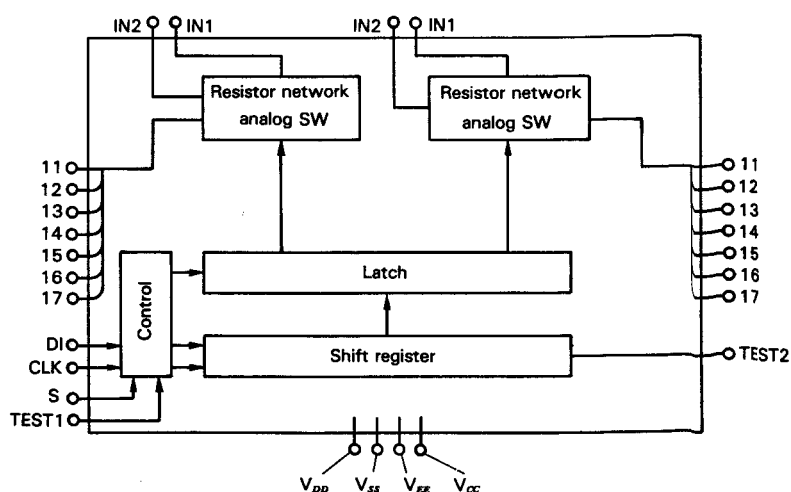
Name	Pin No.	Type	Description																			
V_{DD}	42		• Power supply terminal, +5 V type.																			
V_{SS}	19		• Power supply terminal, GND.																			
DI	17		• CPU data input terminal																			
CLK	18		• Schmitt inverter type																			
S1	15		• Selection terminal when more than one chip (max. 4 chips) are used.																			
S2	16		• Key code table: <table border="1"> <thead> <tr> <th>S2</th><th>S1</th><th>Key code</th><th>Last bit</th></tr> </thead> <tbody> <tr> <td>1</td><td>1</td><td>1 1 1 1 1 1 0 0 1 0 1 1</td><td>1</td></tr> <tr> <td>1</td><td>0</td><td>1 1 1 1 1 1 0 0 1 0 1 0</td><td>0</td></tr> <tr> <td>0</td><td>1</td><td>1 1 1 1 1 1 0 0 1 0 0 1</td><td>1</td></tr> <tr> <td>0</td><td>0</td><td>1 1 1 1 1 1 0 0 1 0 0 0</td><td>0</td></tr> </tbody> </table> Table S1 = S2 = "0"	S2	S1	Key code	Last bit	1	1	1 1 1 1 1 1 0 0 1 0 1 1	1	1	0	1 1 1 1 1 1 0 0 1 0 1 0	0	0	1	1 1 1 1 1 1 0 0 1 0 0 1	1	0	0	1 1 1 1 1 1 0 0 1 0 0 0
S2	S1	Key code	Last bit																			
1	1	1 1 1 1 1 1 0 0 1 0 1 1	1																			
1	0	1 1 1 1 1 1 0 0 1 0 1 0	0																			
0	1	1 1 1 1 1 1 0 0 1 0 0 1	1																			
0	0	1 1 1 1 1 1 0 0 1 0 0 0	0																			
G.PH	21		• Connection terminal for C and R which determine the peak hold reset time of graphic equalizer's spectrum analyzer display																			
T.PH	22		• Connection terminal for C and R which determine the peak hold reset time of total display (Not connected)																			
DIM	32		• Terminal for direct drive of IC (when it is not controlled by the CPU) and for dimmer control																			
f1 - f7, T	31 - 25, 24		• Dimmer ON by "1", OFF by "0"																			
OSC	20		• Input terminal for audio signal rectifier voltage																			
A1 - A13	2 - 14		• Open-drain type output buffer																			
G1 - G9	41 - 33		• Connection terminal for external C and R for the oscillator																			
			• Open-drain driver																			
			• Anode drive																			
			• Open-drain driver																			
			• Grid drive																			

Graphic equalizer; IC10 (LC7522)

Pin configuration


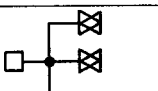




Block diagram

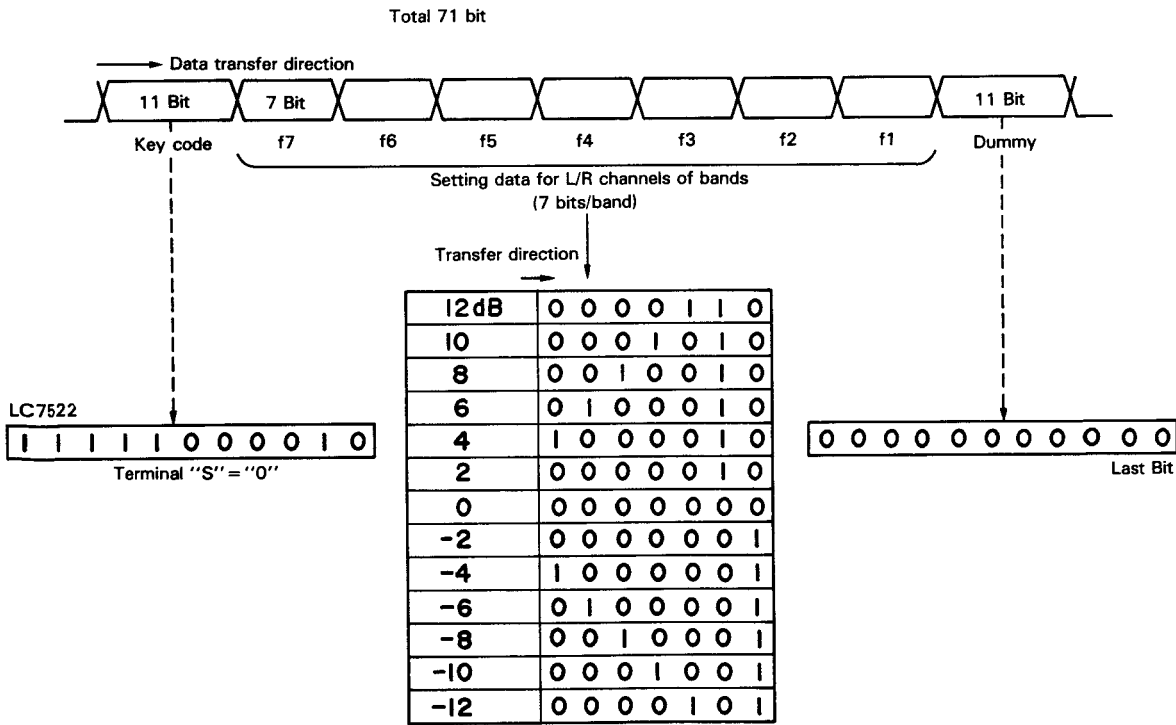
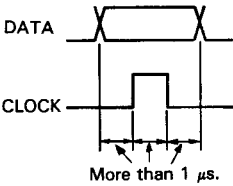


CIRCUIT DESCRIPTION

Description of terminals

Name	Type	Description
V _{DD} V _{SS} , V _{EE} V _{CC}		Power supply terminal + 7 V (typ.) audio signal power supply Power supply terminal 0 V Power supply terminal + 5 V (typ.)
DI		• CPU data input terminal • Schmitt inverter type
CLK		• CPU clock signal input terminal • Schmitt inverter type
IN1 IN2		• Audio signal input terminals • IN1 is normally connected with the inverted input of the op-amp. • IN2 normally connected with the non-inverted input of the op-amp. • Separately provided for L and R.
f1 - f7		• BPF connection terminals • f1 to f7 x L/R = Total 14 terminals
S		• Selection terminal for two-chip operation • Key code 7C2 with input "0" - Connected to V _{EE}
TEST1 TEST2 TEST3		• Terminals for IC internal testing • Set to GND

Data codes



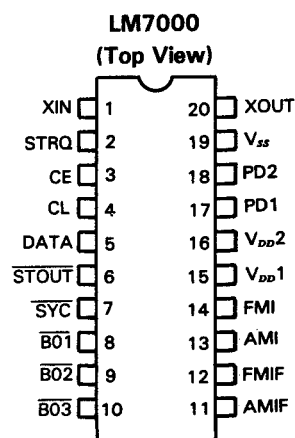
CIRCUIT DESCRIPTION

PLL Frequency synthesizer for electronic tuning; IC8 (LM7000)

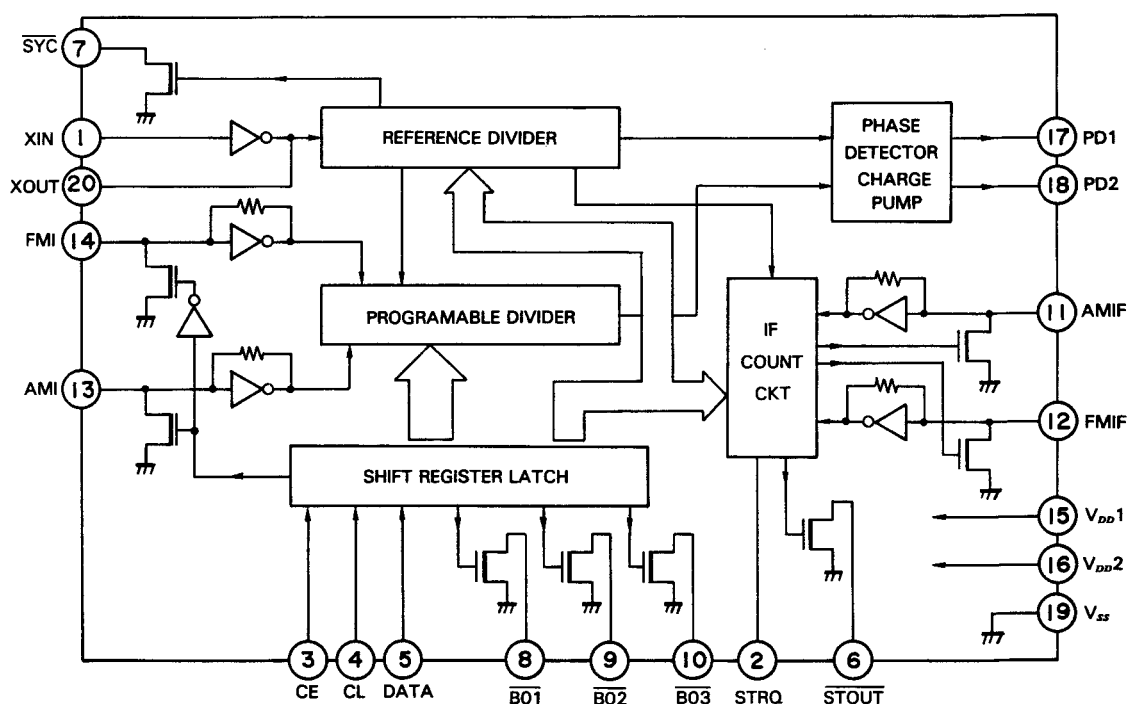
Features

- High-speed program divider with possibility of direct dividing of FM band VCO.
- 7 reference frequencies: 100, 50, 25, 10, 9, 5 and 1 kHz
- Band switching output (3-bit)
- Clock output for controller (400 kHz)
- Timebase output for clock (8 Hz)
- Serial data input (via CE, CL and DATA terminals)
- IF counter circuit built in
 - FM : ± 10 kHz
 - MW/SW : ± 3 kHz
 - LW : ± 0.6 kHz

Pin configuration



Equivalent circuit block diagram



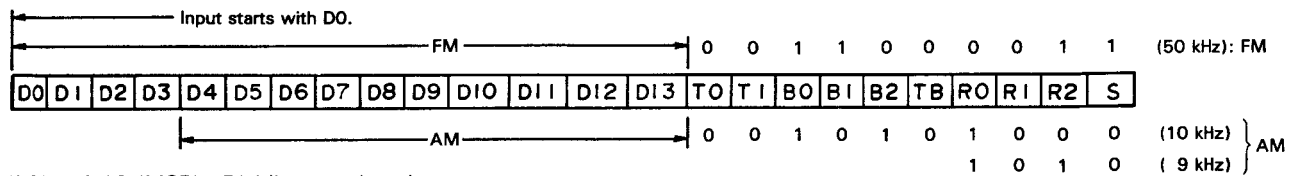
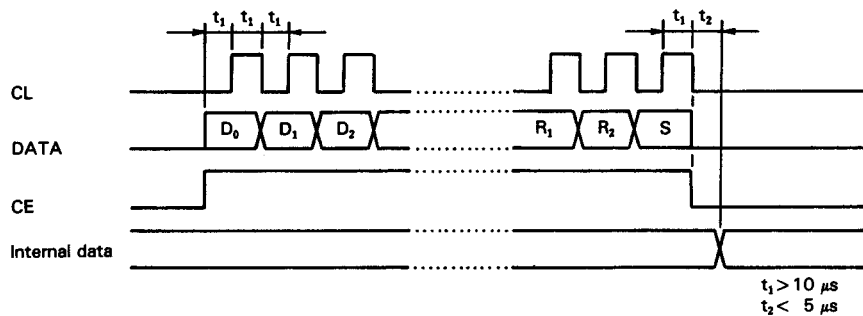
Description of terminals

SYNC : Clock for controller (400 kHz)
 XIN, XOUT : X'tal OSC (7.2 MHz)
 Feedback resistor attached externally
 FMI, AMI : Local oscillator signal inputs
 CE, CL, DATA : Data inputs
 B01, B02, B03 : Band data outputs
 B01 can be assigned for timebase output (8 Hz)

STRQ : IF counting request input
 STOUT : Auto-search stop signal output
 VDD1, VDD2, VSS : Power supplies (VDD2 is the backup power supply.)
 AMIF, FMIF : IF signal inputs
 PD1, PD2 : Charge pump outputs

CIRCUIT DESCRIPTION

Data inputs



- 1) D0 (LSB) - D13 (MSB): Dividing number data:
FMI: D0/D13
AM1: D4/D13

D0	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13
1	0	1	0	0	0	0	0	0	1	0	1	1	1
LSB													MSB
X	X	X	X	0	0	0	0	0	1	0	1	1	1
				LSB									MSB

Number of FMI dividing = 14853

Number of AMI dividing = 928

- 2) T0, T1: For testing (0,0) of LSI.

- 3) B0 to B2, TB: Band data.
Timebase data

Input				Output		
B0	B1	B2	TB	B01	B02	B03
0	0	0	0	*	*	*
0	0	1	0	0	0	1
0	1	0	0	0	1	0
0	1	1	0	0	1	1
1	0	0	0	1	0	0
1	0	1	0	1	0	1
1	1	0	0	1	1	0
1	1	1	0	1	1	1
0	0	0	1	TB	*	*
X	1	0	1	TB	1	0
X	0	1	1	TB	0	1
X	1	1	1	TB	1	1

→ AM (9 kHz)
→ FM (50 kHz)

* : Determined by R0 to R2.
X : Either
TB : 8 Hz

- 4) R0 to R2: Reference frequency data

R0	R1	R2	fref	B01	B02	B03	IF counting
0	0	0	100 kHz	1	1	0	10.7 MHz \pm 10 kHz
0	0	1	50 kHz	1	1	0	
0	1	0	25 kHz	1	1	0	
0	1	1	5 kHz	0	0	1	450 kHz \pm 3 kHz
1	0	0	10 kHz	1	0	1	
1	0	1	9 kHz	1	0	1	
1	1	0	1 kHz	0	1	1	450 kHz \pm 0.6 kHz
1	1	1	5 kHz	0	0	1	450 kHz \pm 3 kHz

Note: When B0 to B2=0

- 5) S: Dividing select data
1: FM
0: AM

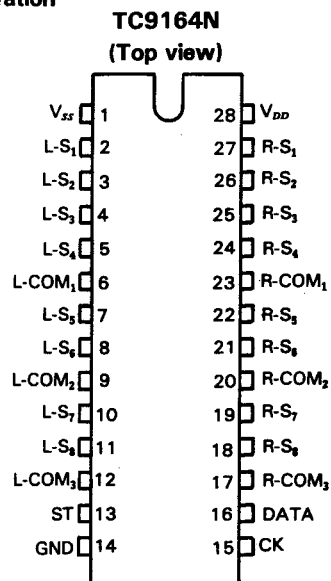
CIRCUIT DESCRIPTION

High-voltage resistant analog function switch array; IC2 (TC9164N)

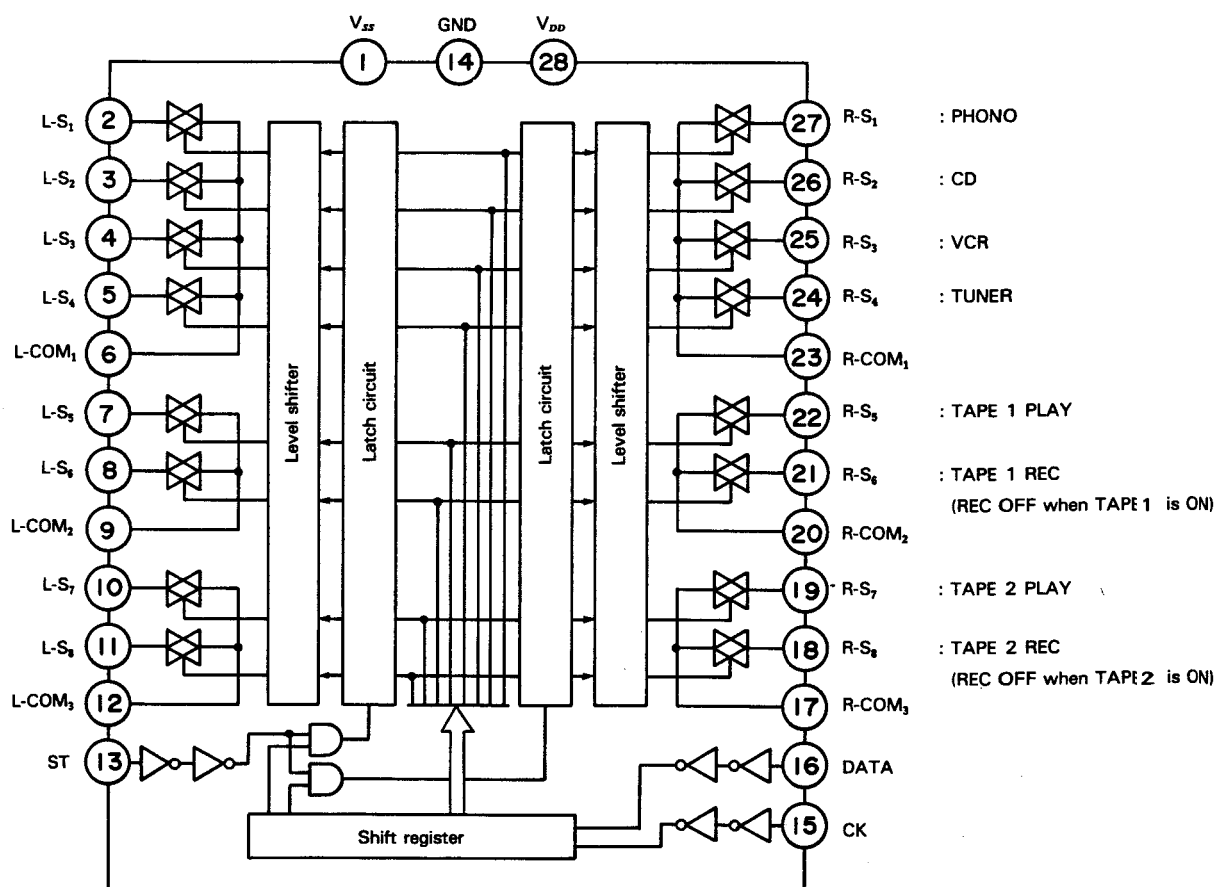
The TC9164N is an analog switch array resistant to high voltages. Control of analog switches is possible by inputting specified serial data.

Analog switches can be controlled independently so the switch array can cover a wide range of operations according to its external connection.

Pin configuration



Block Diagram



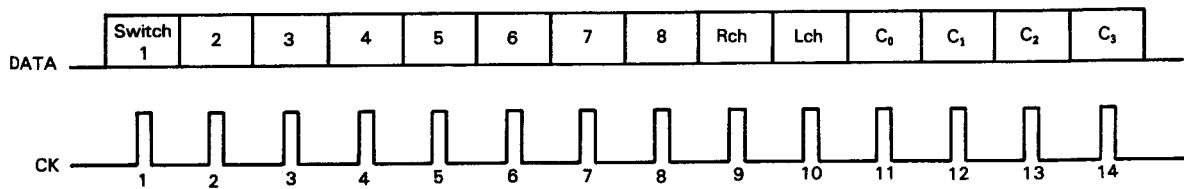
CIRCUIT DESCRIPTION

Operation description

Data input

Analog switches of the TC9164N can be controlled as desired by inputting specified data to the DATA, CK and ST terminals.

The data is composed of 14 bits and the composition is as shown below.



Bits 1 to 8 correspond to analog switches 1 to 8: Set the bits of the switches to turn ON to level "1". Bits 9 and 10 are the L/R channel selector bits: As channels can be selected by setting these bits to level "1", channels can be selected simultaneously ("1", "1") or independently ("1", "0" or "0", "1").

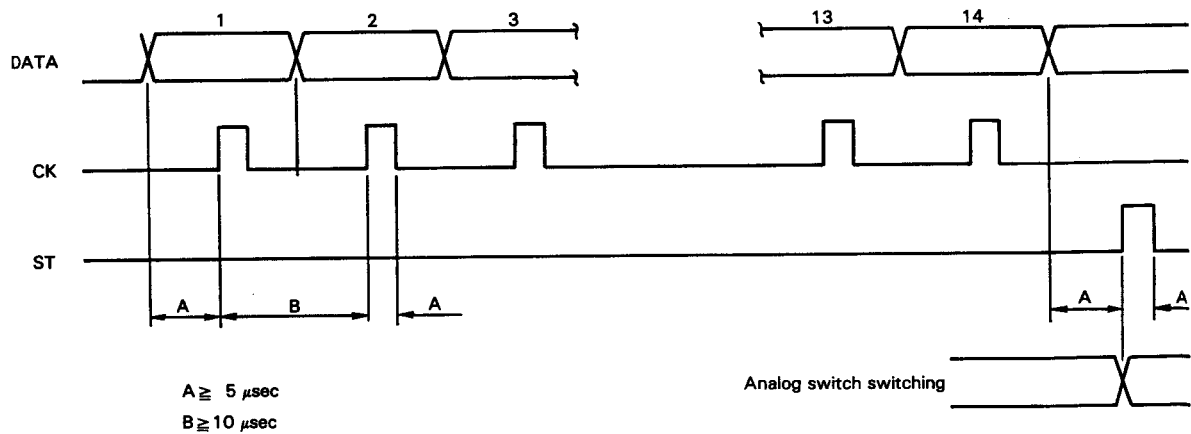
Bits 11 to 14 are code bits used for selecting chips.

Codes are specified as shown below.

	C ₀	C ₁	C ₂	C ₃
TC9164N	0	1	0	0

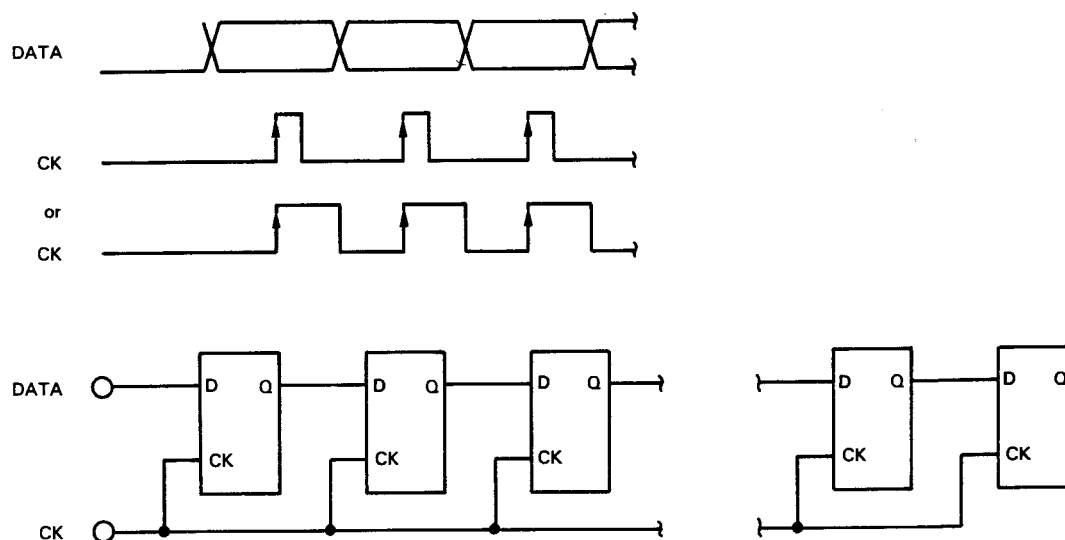
Timings of DATA, CK and ST

The DATA, CK and ST timings are input to the conditions shown below.



CIRCUIT DESCRIPTION

The DATA inputs are input in sequence to the internal shift register at the rises of the CK inputs.



The final ST signal is used to transfer the input data from the shift register to latch circuit, and data is updated from old data to new data.

CIRCUIT DESCRIPTION

Key matrix distribution

The key matrix uses the outputs obtained from the microprocessor's port outputs using 4 to 10 decoders (Q₀

-Q₉) and the microprocessor's output ports for the strobe signals, and four return signal ports are used to make the matrix.

OUTPUT \ INPUT	P10 (20)	P11 (21)	P12 (22)	P13 (23)
Q ₀	0	4	8	FM
Q ₁	1	5	9	AM
Q ₂	2	6	DOWN	MEMORY
Q ₃	3	7	UP	AUTO/MANUAL
Q ₄	GE MEMORY	GE f4	**	GE A
Q ₅	GE f1	GE f5	GE 1	GE B
Q ₆	GE f2	GE f6	GE 2	GE DOWN
Q ₇	GE f3	GE f7	GE 3	GE UP
Q ₈	POWER	TAPE1	VOL DOWN	DIRECT
Q ₉	PHONO	TAPE2	VOL UP	PRESET SCAN
P30 (59)	TUNER	VIDEO	BAL R	PRESET FUNCTION A/B
P31 (60)	AUX/CD	MUTE	BAL L	
P32 (61)	*REMOTE CONTROL or NOT	*(J) DESTINATION	*BAND 0	*BAND 1

- Numbers inside () are the pin Nos. of the microprocessor.
- Switches are momentary switches except those marked.
* which are diode switches.
- KEY input levels are Active High.
- **EQ/ANALYZER ON/OFF SW; (Except KVR-A70R and KR-A70).
- **EQ/POWER LEVEL ON/OFF SW; (Except KVR-A90R)

Description of key matrix

Functions of initial setting diode matrix

The initial setting diode matrix includes the following four types of data, which are read at the time of reset.

- (1) Remote controlled or not
0: Not remote controlled. Resetting always leads to the power ON status.
1: Remote control function used. Resetting leads to the previous power status. The initial condition is the power OFF status.

- (2) (J) destination
0: Destination is other than (J) so switches BAND0 and BAND1 are effective.
1: Destination is set for (J) so switches BAND0 and BAND1 are ineffective.
- (3) BAND0, BAND1
Effective for models with destinations other than for (J), so that the FM and AM channel spaces can be set.
The reception conditions of different models with different destinations are shown below.

Band	Destination J	Band 0	Band 1	Reception Frequency Range	Channel Space	Reference Frequency	Intermediate Frequency
FM	0	0	—	87.5 ~ 108.0 MHz	100 kHz	50 kHz	10.7 kHz
	0	1	—	87.5 ~ 108.0 MHz	50 kHz	50 kHz	10.7 MHz
	1	—	—	76.0 ~ 90.0 MHz	100 kHz	50 kHz	— 10.7 MHz
AM	0	—	0	530 ~ 1610 kHz	10 kHz	10kHz	450 kHz
	0	—	1	531 ~ 1602 kHz	9 kHz	9 kHz	450 kHz
	1	—	—	531 ~ 1602 kHz	9 kHz	9 kHz	450 kHz

CIRCUIT DESCRIPTION

• Functions of momentary switches

Symbols	Functions
POWER	<p>Receiver system power supply ON/OFF key. Power ON/OFF is inverted each time this key is pressed and the POWER terminal (pin 13) is turned ON/OFF. At initial power switching (when the main power switch is set to ON after connecting the power plug), operation starts with the Power OFF status (KVR-A90R/A70R), operation starts with the Power ON status (KR-A70). The initial Power ON status condition is as follows.</p> <ul style="list-style-type: none"> • Input selector: TUNER • Tuner condition : FM lowest value, MANUAL Tuning, all preset memories at the FM lowest value. • Volume : -56 dB • Balance : Center • Graphic equalizer memories: All flat = ± 0 dB <p>In the Power ON status, all keys (including remote control) are acceptable. In the power OFF status, only the POWER key is acceptable and other keys are not acceptable. After this, last statuses (statuses previous to switching power OFF) are recalled by the Power ON statuses. When the Input Selector was set to PHONO before switching power OFF, it becomes PHONO when power is next switched ON. When the volume was -40 dB, it also becomes -40 dB.</p>
PHONO TUNER AUX/CD TAPE 1 VIDEO	<p>Input selector keys. Pressing one of these keys switches the position and the input selector character display as shown below is displayed, except that frequency is displayed when TUNER is selected.</p> <p>The input selector key is invalid when the key the same as the current position is pressed. Muting signal (MUTE 1) is output during switching when the key operation is valid.</p> <p>TAPE 1 is treated as one of sources. The TAPE 1 REC switch is OFF in the TAPE 1 position and ON in other positions.</p> <p>PHONO CD TAPE 1 VIDEO</p>
TAPE 2	<p>TAPE 2 is initially set to MONITOR. Switching between SOURCE/MONITOR is possible using this key. Muting signal (MUTE 2) is output during switching. The TAPE 2's PLAY switch is OFF and REC switch is ON in SOURCE mode. The PLAY switch is ON and REC switch is OFF in MONITOR mode.</p> <p>The Input selector uses an analog function switch array IC TC9164N, the switch location of which is as shown below. (Refer to page 17)</p>
VOL. UP VOL. DOWN	<p>These are the audio volume UP/DOWN keys. The volume control is performed by electronic volume IC TC9176P, which is controlled by the microprocessor. The volume is variable in 40 2-dB steps by pressing the VOL. UP or VOL. DOWN key. (-∞, -76 to -0 dB)</p> <p>When power is switched ON, -56 dB is output as the initial value. The attenuation is increased or decreased by each press of the VOL. UP or VOL. DOWN key.</p> <p>When a key is held pressed for more than approx. 0.5 sec, the amount of attenuation is varied until the key is released at a speed of approx. 120 ms/step. However, the attenuation does not vary when the VOL. MAX value (-0 dB) is reached in UP operation or when the VOL. MIN value (-∞ dB) is reached in DOWN operation.</p> <p>The value of attenuation is displayed digitally during the VOL. UP/DOWN key operations.</p> <p>- 3 8 d B</p> <p>However, during direct input, auto-scanning and preset scanning, the frequency display is given priority and the value of attenuation is not displayed. The volume is also displayed permanently by the 11-point bar graph displays.</p>
MUTE	<p>The audio volume can be temporarily reduced by -20 dB from the current position by pressing this key. Setting and release of MUTE (-20 dB) is performed with this key and release is not possible even by switching power ON/OFF, etc. MUTE (-20 dB) is performed by electronic volume IC TC9176P which varies the output data. The MUTE (-20 dB) display blinks during this mode.</p>
BAL R BAL L	<p>These are the balance control keys. Each of the L and R keys internally has a 4-bit, 10-step counter, which counts up/down when the key is pressed. The electronic volume data is elaborated using the counter value and output to control electronic volume IC TC9176P. 21 balance positions are provided.</p> <p>Each press of the BAL R/L key shifts the balance position by one step. When a key is held pressed for approx. more than 0.5 sec, the positions are scanned at a speed of approx. 300 ms/step until it stops when the R or L end position is reached.</p>
GE UP GE DOWN	<p>These keys are used to set the boost, cut, etc. of the graphic equalizer. These keys are valid only when the graphic equalizer display is flashing after GE keys f1 (60 Hz) to f7 (15 kHz) have been operated. The graphic equalizer level can be varied in 13 2 dB steps between MAX. +12 dB and MIN. -12 dB. This operation is performed using graphic equalizer/spectrum analyzer display IC LC7565 and graphic equalizer IC LC7522.</p> <p>Each press of a key varies the level of the graphic equalizer for the specified frequency band by 1 step. When the key is held pressed for approx. more than 0.5 sec, the level is varied UP or DOWN at a speed of 120 ms/step.</p>

CIRCUIT DESCRIPTION

Symbols	Functions																								
GE f1 (60 Hz) GE f2 (150 Hz) GE f3 (400 Hz) GE f4 (1 kHz) GE f5 (2.4 kHz) GE f6 (6 kHz) GE f7 (15 kHz)	These keys are used to select the frequency bands of the graphic equalizer when setting its levels. When any of these keys is pressed, the display changes to the graphic equalizer display even during spectrum analyzer display, with the graphic equalizer display corresponding to the frequency band selected flashing to indicate that the graphic equalizer can be operated. If the GE UP or DOWN key is not pressed for approx. 5 seconds, flashing stops and the display is changed to the ordinary graphic equalizer display.																								
GE MEMORY	This key is used to write the graphic equalizer condition in the graphic equalizer memory. When this key is pressed, "MEMORY" lights, "◀" on the side of the GE 1 to 3 displays flashes, and graphic equalizer memory storage becomes possible. This condition lasts for approx. 5 sec and the current graphic equalizer condition can be stored in the specified memory by pressing one of GE 1 to 3 keys during this period. This key is valid only during graphic equalizer display mode.																								
GE 1 GE 2 GE 3	These graphic equalizer preset keys correspond to the three programmable graphic equalizer memories and are used for write and read operations of graphic equalizer memories. <ul style="list-style-type: none">For programming, press the GE MEMORY key, then press one of the GE 1 to 3 keys within approx. 5 sec (while "MEMORY" is lit and "◀" is flashing). The current graphic equalizer condition is written in the graphic equalizer memory corresponding to the key selected.For recalling, press one of the GE 1 to 3 keys. The corresponding graphic equalizer condition will be recalled. In either cases, if normal display mode is set for the spectrum analyzer display, graphic equalizer display lasts for approx. 5 sec, after which the spectrum analyzer display resumes.																								
GE A GE B	Used to recall the graphic equalizer's preset memories. Pressing one of these keys recalls the corresponding graphic equalizer condition. The condition of the preset memories is as follows: <table><tr><td>Frequency band Preset memory</td><td>f1</td><td>f2</td><td>f3</td><td>f4</td><td>f5</td><td>f6</td><td>f7</td></tr><tr><td>GE A (Loudness)</td><td>+ 4dB</td><td>+ 2dB</td><td>± 0dB</td><td>- 2dB</td><td>- 2dB</td><td>± 0dB</td><td>+ 2dB</td></tr><tr><td>GE B (Presence)</td><td>+ 2dB</td><td>± 0dB</td><td>- 2dB</td><td>+ 2dB</td><td>+ 4dB</td><td>± 0dB</td><td>- 2dB</td></tr></table>	Frequency band Preset memory	f1	f2	f3	f4	f5	f6	f7	GE A (Loudness)	+ 4dB	+ 2dB	± 0dB	- 2dB	- 2dB	± 0dB	+ 2dB	GE B (Presence)	+ 2dB	± 0dB	- 2dB	+ 2dB	+ 4dB	± 0dB	- 2dB
Frequency band Preset memory	f1	f2	f3	f4	f5	f6	f7																		
GE A (Loudness)	+ 4dB	+ 2dB	± 0dB	- 2dB	- 2dB	± 0dB	+ 2dB																		
GE B (Presence)	+ 2dB	± 0dB	- 2dB	+ 2dB	+ 4dB	± 0dB	- 2dB																		
Spectrum analyzer ON/OFF (EQ/ANALYZER) (KVR-A90R)	This key switches between the spectrum analyzer and graphic equalizer display modes. When the key is pressed, the spectrum analyzer display is changed to graphic equalizer display and graphic equalizer display is changed to spectrum equalizer display. The graphic equalizer operation ready status is released and changed to the spectrum display by this key. When the graphic equalizer display has been displayed by recalling a graphic equalizer memory, the condition before the recall is displayed; the graphic display is not changed when the previous condition was graphic display and is changed to spectrum analyzer display when the previous condition was spectrum analyzer display.																								
EQ/POWER LEVEL (KVR-A70R, KR-A70)	This key switches between the graphic equalizer and power level display modes. When this key is pressed, the graphic equalizer display is changed to power level display and power level display is changed to graphic equalizer display. The graphic equalizer operation ready status is released and changed to the power level display by this key. When the graphic equalizer has been displayed by recalling a graphic equalizer memory, the condition before the recall is displayed; the graphic equalizer display is not changed when the previous condition was graphic equalizer display and is changed to power level display when the previous condition was power level display.																								
0, 1, 2, 3, 4, 5, 6, 7, 8, 9	Digit keys, preset channel memory programming keys and recall keys. (1) Operation as digit keys. Input the frequency using these keys in the direct frequency input operation. (2) Operation as preset channel memory keys. Each of these keys corresponds to two preset channel memories. The two memories are distributed by the A and B preset functions. <ul style="list-style-type: none">Programming Within approx. 5 sec. of pressing the MEMORY key, select A or B using the Preset Function key, then press one of keys 0 to 9. The frequency being tuned in is programmed in the memory corresponding to the key pressed.Recalling By combination of keys 0 to 9 and the Preset Function key, a preset memory corresponding to the selected keys is recalled.																								

CIRCUIT DESCRIPTION

Symbols	Functions
UP DOWN	<p>When these auto/manual tuning keys are pressed, the following operations are performed. These keys are valid only with the TUNER position of the Input Selector.</p> <p>(1) When the AUTO/MANUAL switch (Tuning mode) is set to AUTO, pressing the UP key scans the frequency upward in sawtooth wave mode and pressing the DOWN key scans it downward. When the input level at the SD terminal (pin 10) becomes Low at this time, frequency scanning is stopped and auto-tuning is stopped.</p> <p>(2) When the AUTO/MANUAL switch is set to MANUAL, pressing the UP or DOWN key changes the tuning frequency by one step (channel space) up or down. When a key is held depressed for more than approx. 0.5 sec, the frequency is scanned up/down at a speed of 125 ms/step until the key is released. At band edges, tuning is interrupted for approx. 0.5 sec.</p>
FM AM	FM/AM band switching keys. When one of the keys is pressed, the reception band is switched to the corresponding band, at the last frequency, which is the frequency the unit was tuned in the last time the band was selected. This key is valid only in the TUNER position and is invalid when the key the same as the present band is pressed.
MEMORY	Used to program a new frequency in the preset channel memory. Within 5 sec of pressing this key, select A or B of the Preset Function key, then press one of the 10 digit keys so that the frequency being tuned in is programmed in the preset channel memory corresponding to the keys pressed. However, this key is valid only in the TUNER position.
AUTO/MANUAL	Tuning mode switching keys. The modes are alternated each time this key is pressed. When this key is pressed during auto-tuning, autotuning stops and the unit enters manual tuning mode. This key is valid only in the TUNER position.
PRESET FUNCTION A/B	Preset mode A/B switching key. Used in combination with 10 digit keys to program or recall a preset channel memory. This key is valid only in the TUNER position.
DIRECT	Direct frequency input mode selection key. To tune into a frequency by inputting its value with the 10 digit keys, first press this key, then input the frequency data using the 10 digit keys. This mode is released when no key has been operated for approx. 5 sec. This key is valid only in the TUNER position.
PRESET SCAN	Preset scanning operation key. Pressing this key scans preset channel memory to the next memory when a preset channel has presently been received, and starts preset channel memory scanning from Channel A-0 when a preset channel is not being received presently. Channel A-9 is followed by B-0 and, after B-1, B-2, ... B-8, B-9 is followed by A-0. This key is valid only in the TUNER position.

CIRCUIT DESCRIPTION

Functions of remote control keys (Except KR-A70)

Keys on the remote control unit are arranged as shown below. Almost all keys are found on the key matrix on the main body and have exactly the same functions as the keys

on it. The remote control unit is also provided with operation keys for the tape deck, turntable and CD player connected to the receiver. Their functions are described below.

FM	AM	DIRECT	POWER
0	1	2	3
A/B	4	5	6
P.SCAN	7	8	9
◀◀	▶▶	■ STOP	PLAY/CUT
◀	▶		● REC
◀◀	▶▶	▶ PLAY	/■ PAUSE
CD/AUX	TUNER	PHONO	VOL. UP ▲
TAPE-2	TAPE-1	VIDEO	
EQ-1	EQ-2	EQ-3	▼
EQ-A	EQ-B	MUTE	VOL. DOWN

Symbols	Functions
PLAY/CUT	Turntable control key. Each press of this key reverses the High/Low level at the PLAYER terminal (pin 62). The turntable performs PLAY the operation at the rise and CUT operation at the fall of the pulse.
◀◀, ▶▶ ◀▶, PAUSE ● REC, ■ STOP	Tape deck control keys. When one of these keys is pressed, the code for signal output is output from the terminal corresponding to the key. Refer to the "Description of terminals" related to pins 1 to 3.
◀◀, ▶▶ ▶ PLAY, /■ PAUSE	CD player control keys. Communication with the microprocessor of the CD player is performed via the CD terminal (pin 15) by pressing this key. Refer to the description on CD communication processing.



KYR-AZOR

CIRCUIT DESCRIPTION

Description of terminals: IC1 (μ PD7519G-172-36) microprocessor

Pin No.	Symbols	I/O	Names	Functions																																													
1 - 3	P20 - P22	O	TAPE DECK CONTROL OUT	<p>Signals for tape deck control from the remote control unit. Tape deck control signals are generated by decoding signals from these three terminals. The IC4 (μPD4028BC) decoder is used and the connection between P20 to P22 and the decoder is: P20 - A, P21 - B, P22 - C.</p> <table border="1"> <thead> <tr> <th>P22(C)</th><th>P21(B)</th><th>P22(A)</th><th>Terminal becoming High</th><th>Instruction to deck</th></tr> </thead> <tbody> <tr><td>0</td><td>0</td><td>0</td><td>None</td><td>None</td></tr> <tr><td>0</td><td>0</td><td>1</td><td>Q₁</td><td>STOP (■)</td></tr> <tr><td>0</td><td>1</td><td>0</td><td>Q₂</td><td>PLAY (◀)</td></tr> <tr><td>0</td><td>1</td><td>1</td><td>Q₃</td><td>PLAY (▶)</td></tr> <tr><td>1</td><td>0</td><td>0</td><td>Q₄</td><td>FF (▶▶)</td></tr> <tr><td>1</td><td>0</td><td>1</td><td>Q₅</td><td>REW (◀◀)</td></tr> <tr><td>1</td><td>1</td><td>0</td><td>Q₆</td><td>PAUSE ()</td></tr> <tr><td>1</td><td>1</td><td>1</td><td>Q₇</td><td>REC (●)</td></tr> </tbody> </table> <p>Instructions to the tape deck are sent when the decoder output terminal becomes High for 100 ms.</p>	P22(C)	P21(B)	P22(A)	Terminal becoming High	Instruction to deck	0	0	0	None	None	0	0	1	Q ₁	STOP (■)	0	1	0	Q ₂	PLAY (◀)	0	1	1	Q ₃	PLAY (▶)	1	0	0	Q ₄	FF (▶▶)	1	0	1	Q ₅	REW (◀◀)	1	1	0	Q ₆	PAUSE ()	1	1	1	Q ₇	REC (●)
P22(C)	P21(B)	P22(A)	Terminal becoming High	Instruction to deck																																													
0	0	0	None	None																																													
0	0	1	Q ₁	STOP (■)																																													
0	1	0	Q ₂	PLAY (◀)																																													
0	1	1	Q ₃	PLAY (▶)																																													
1	0	0	Q ₄	FF (▶▶)																																													
1	0	1	Q ₅	REW (◀◀)																																													
1	1	0	Q ₆	PAUSE ()																																													
1	1	1	Q ₇	REC (●)																																													
4	P23	O	MUTE2	Muting signal for switching TAPE2 between SOURCE/MONITOR. Normally Low and Active High.																																													
5				Reset input terminal.																																													
6	PPO	O	MUTE1	Muting signal for Input Selector switching and tuner. Normally Low and Active High.																																													
7	NC																																																
8	P00/INTO	I	CE	<p>Backup detection terminal. Timing chart is as shown below.</p> <div style="display: flex; justify-content: space-around;"> <div> <p>When Main Power is ON.</p> </div> <div> <p>When Main Power is OFF.</p> </div> </div>																																													
9	P01/SCK	I	REM IN	<p>Remote control signal input terminal (Active Low) to be connected with the output of μPC1474HA. Remote control transmission IC μPD6102G is used.</p>																																													
10	P02/SO	I	$\overline{\text{SD}}$	<p>Station detection signal in auto-tuning, etc. High: No station. Low : Station detected.</p>																																													

CIRCUIT DESCRIPTION

Description of terminals

Pin No.	Symbols	I/O	Names	Functions
11	P03/SI	I		Non-used input ports. Set either to Low or High level.
12	P60	O	GE DATA OUT	Signal for preventing the P31 and P30 (key scan) signals, which are always output, being supplied to LC7522. This becomes Low only when data is written in LC7522 (GE IC).
13	P61	O	POWER	Power remote control output terminal (Active High). High (Power ON) and Low (Power OFF) are alternated each time the REMOTE POWER key is pressed.
14	P62	O	VIDEO	High in the VIDEO position, Low in other positions.
15	P63	I/O	CD	Port used for communication with the microprocessor of the CD player for its remote control.
16 - 19	P50 - P53	O		Output ports for the 4 to 10 decoder IC3 (μ PD4028BC). Output key strobe signals.
20 - 23	P10 - P13	I		Key matrix return signal input terminals.
24	NC			
25	P40	O		CLK terminal control port used when writing data (with serial input) in the graphic equalizer IC (LC7522) or graphic equalizer/spectrum analyzer display IC (LC7565). Refer to the documents describing LC7522 and LC7565.
26	P41	O		Electronic volume IC (TC9176P) ST terminal control port. Normally High so that the P31 and P30 (key scan) signals, which are always output, are not supplied to TC9176P. Becomes Low only when writing data, after which the terminal level is raised. The ST signal is generated using this rise.
27	P42	O		Switch array IC (TC9167N) control port. Normally High so that the P31 and P30 (key scan) signals, which are always output, are not supplied to TC9164N. Becomes Low only when writing data, after which the terminal level is raised. The ST signal is generated using this rise.
28	P43	O		PLL IC (LM7000) CE terminal control port. Normally Low and High when writing data. Refer to the documents describing LM7000.
29	EVENT	I		Non-used input terminals. Set either to Low or High level.
30, 31	X2, X1			System clock signal oscillation terminal. 4.19 MHz.
32	Vss			GND terminal
33 - 40 41 - 48	S7 - S0 S15 - S8	O	SEG	FL display segment control terminals.
49 - 56	T1 - T	O	DIG	FL display digit control terminals.
57	V _{LOAD}			FL display drive power supply (– 30 V).
58	V _{PRE}			Power supply for the pre-driver of FL display driver.
59	P30	O		<ul style="list-style-type: none"> Key strobe signal terminal CLK terminal for writing data (serial input) in LM7000, TC9164N, TC9176P, LC7522 and LC7565.

CIRCUIT DESCRIPTION

Description of terminals

Pin No.	Symbols	I/O	Names	Functions
60	P31	0		<ul style="list-style-type: none"> Key strobe signal terminal. DATA terminal for writing data (serial input) in LM7000, TC9164N, TC9176P, LC7522 and LC7565.
61	P32	0		Key strobe signal terminal
62	P33	0		Turntable remote control terminal. PLAY at rise and CUT at fall.
63	INT1	I		Non-used input terminal. Set either to Low or High level.
64	V _{DD}			Power supply terminal

Display tube drive

The display tubes use FIP18AMW24 and are driven by spectrum analyzer/graphic equalizer IC2 LC7565 and this microprocessor.

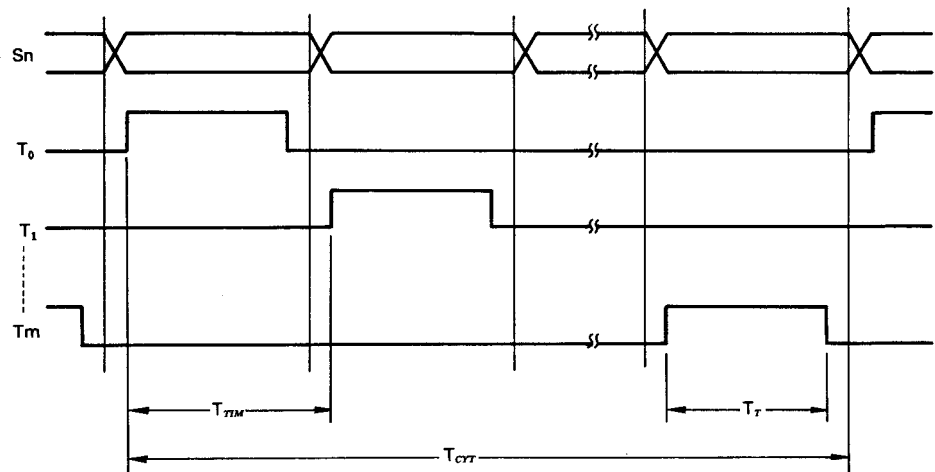
Refer also to the item describing the display tubes.

- (1) Graphic equalizer/spectrum analyzer display section
(9G to 15G)
Spectrum analyzer/graphic equalizer IC LC7565 is used.

The duty ratio is 1/11.4 and scanning frequency is determined by connecting a C and R to the IC. The IC drives directly the display which has 8 digits and 13 segments.

- (2) Frequency and other item display section
This section is driven by the display output terminals of this microprocessor μ PD7519G.

Waveforms of FIP display output



$$T_{TM} = \frac{1}{f_{XX}} \times 512 (= 122 \mu/4.19 \text{ MHz}) \text{ or } \frac{1}{f_{XX}} \times 1024 (= 244 \mu/4.19 \text{ MHz})$$

$$T_T = \text{Programmable (8} \times 2 \text{ variations possible depending on the content of blanking mode register and } T_{TM})$$

$$T_{CT} = T_{TM} \times (m + 1) m = 0 - 15 \text{ (1 to 16 digits)}$$

CIRCUIT DESCRIPTION

Display mode register DM = 7: 16 segment mode
Timing signal Tn, Active High
Timing mode register TM = 7: 8-digit display
Blanking mode register BM = 5: ϕ FIP/2 operation
Timing signal cut width 4/16
Clock frequency: 4.19 MHz

The following values can be read from the conditions above.

$T_{TM} = 244 \mu s$
 $T_T = 183 \mu s$
Blanking frequency = 61 μs
 $T_{CYT} = 1952 \mu s$
Scanning frequency = 512 Hz
Duty = 1/10.67

Although display tubes are normally driven directly, direct drive of 1G, 2G, 6G, 7G and 8G from the display terminal is not possible because the current is insufficient due to the wide surface of the grids. A driver buffer is added for them.

REGLAGES

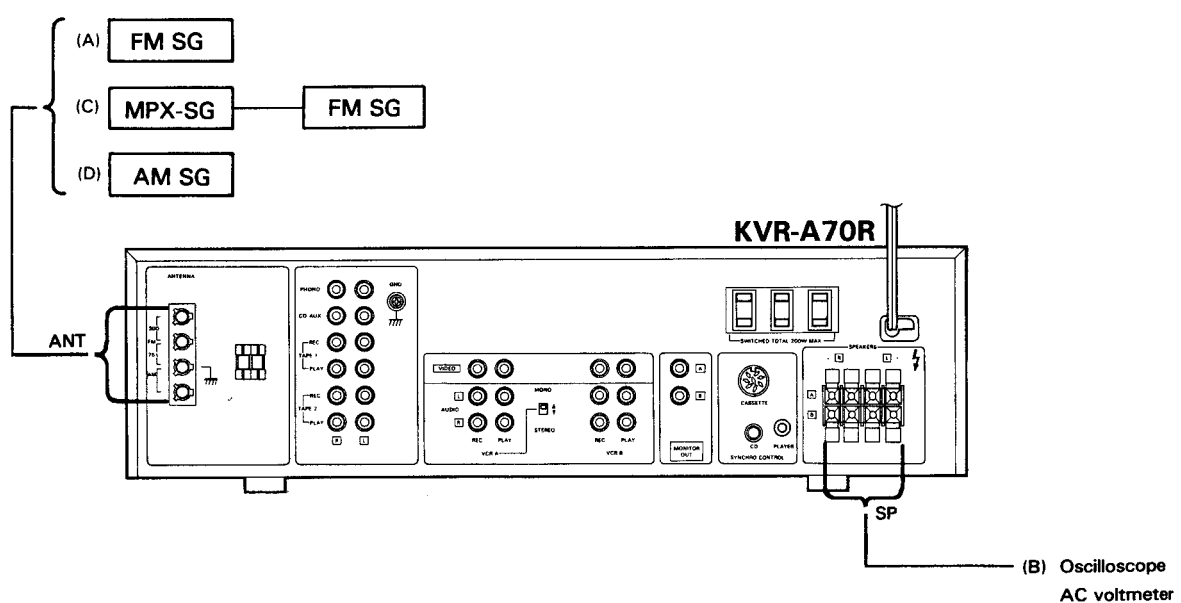
N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DU TUNER	POINT DE L'ALIGNEMENT	ALIGNER POUR	FIG.
SECTION MF							
Sauf en cas d'indications spéciales, régler chaque commutateur comme suit: SELECTEUR: FM MODE: AUTO							
1	BORD DE BANDE (1)	—	Connecter un voltmètre CC entre les TP8 et TP9.	87,5MHz	(X86-101) L8	2,5V	(a)
2	BORD DE BANDE (2)	—	Connecter un voltmètre CC entre les TP8 et TP9.	108MHz	(X86-101) TC1	8,0V	(a)
Répéter les points 1 et 2 plusieurs fois.							
3	ALIGNEMENT HT	(A) 98,0MHz 1kHz, ±75kHz dév	(B)	MODE: MONO 98,0MHz	(X86-101) L2.4 (L5)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
4	DISCRIMINATEUR (1)	(A) 98,0MHz 1kHz, ±75kHz dév 60dB(Entrée ANT)	Connecter un voltmètre CC entre les TP11 et TP12.	MODE: MONO 98,0MHz	(X14-178) T1	0 V	(b)
5	DISCRIMINATEUR (2)	(A) 98,0MHz 1kHz, ±75kHz dév 60dB(Entrée ANT)	(B)	MODE: MONO 98,0MHz	(X14-178) T2	Distorsion minimale.	
6	VCO	(A) 98,0MHz 0 dév 60dB(Entrée ANT)	Connecter une résistance de 330kΩ à TP13. Racorder un compteur de fréquence à une résistance par l'intermédiaire d'un voltmètre CA.	98,0MHz	(X14-178) VR2	76,00kHz	(c)
7	DISTORSION (STEREO)	(C) 98,0MHz 1kHz, ±68,25kHz dév Selection: G ou D Signal pilote: ±6,75kHz dév 60dB(Entrée ANT)	(B)	98,0MHz	(X86-101) L7	Distorsion minimale.	
8	SEPARATION (E type)	(C) 98,0MHz 1kHz, ±40kHz dév Selection: G ou D Signal pilote: ±6kHz dév 60dB(Entrée ANT)	(B)	98,0MHz	(X14-178) VR3	Diaphone minimale.	
SECTION MA							
Laisser l'antenne bouche MA installée. SELECTEUR: AM							
(1)	BORD DE BANDE	—	Connecter un voltmètre CC entre les TP72 et TP73.	530kHz (531kHz)	(X14-178) L4	1,5V	(a)
(2)	BORD DE BANDE	—	Connecter un voltmètre CC entre les TP72 et TP73.	1610kHz (1602kHz)	(X14-178) TC2	8,0V	(a)
Répéter les points (1) et (2) plusieurs fois.							
(3)	ALIGNEMENT HT (1)	(D) 600kHz 400Hz, 30% mod	(B)	600kHz	(X14-178) L5	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
(4)	ALIGNEMENT HT (2)	(D) 1400kHz 400Hz, 30% mod	(B)	1400kHz	(X14-178) TC1	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
Répéter les points (3) et (4) plusieurs fois.							
SECTION AUDIO							
①	REGLAGE DU COURANT DE POLARISATION	—	Connecter un voltmètre CC sur CP1 (CP2).	VOLUME: -∞	(X14-222) VR1 (G) VR2 (D)	18mV	(e)

ABGLEICH

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	TUNER-EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABB.
U KW - E M P F A N G S A B T E I L U N G Außer wenn anders angegeben, die verschiedenen Schalter wie folgt einstellen: SELECTOR: FM MODE: AUTO							
1	BANDKANTE (1)	—	Einen Gleichspannungsmesser zwischen TP8 und TP9 anschließen.	87,5MHz	(X86-101) L8	2,5V	(a)
2	BANDKANTE (2)	—	Einen Gleichspannungsmesser zwischen TP8 und TP9 anschließen.	108MHz	(X86-101) TC1	8,0V	(a)
Abstimmungen 1 und 2 mehrere Male wiederholen.							
3	EMPFANGS-BEREICH-ABSTIMMUNGEN	(A) 98,0MHz 1kHz.±75kHz Hub	(B)	MODE: MONO 98,0MHz	(X86-101) L2.4 (L5)	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
4	DISKRIMINATOR (1)	(A) 98,0MHz 1kHz.±75kHz Hub 60dB(ANT-Eingang)	Einen Gleichspannungsmesser zwischen TP11 und TP12 anschließen.	MODE: MONO 98,0MHz	(X14-178) T1	0 V	(b)
5	DISCRIMINATOR (2)	(A) 98,0MHz 1kHz.±75kHz Hub 60dB(ANT-Eingang)	(B)	MODE: MONO 98,0MHz	(X14-178) T2	Minimaler Klirrfaktor.	
6	SPANNUNGS-GEREGELTER OSZILLATOR	(A) 98,0MHz 0 Hub 60dB(ANT-Eingang)	Einen 330kΩ Widerstand zu TP13 anschließen. Einen Frequenzzähler über einen Wechselspannungsmesser an den Widerstand anschließen.	98,0MHz	(X14-178) VR2	76,00kHz	(c)
7	KLIRRFAKTOR (STEREO)	(C) 98,0MHz 1kHz.±68,25kHz Hub Wähler: L oder R Piloten: ±6,75kHz Hub 60dB(ANT-Eingang)	(B)	98,0MHz	(X86-101) L7	Minimaler Klirrfaktor.	
8	STEREO KANAL TRENNUNG (E type)	(C) 98,0MHz 1kHz.±40kHz Hub Wähler: L oder R Piloten: ±6kHz Hub 60dB(ANT-Eingang)	(B)	98,0MHz	(X14-178) VR3	Minimales Übersprechen.	
M W - E M P F A N G S A B T E I L U N G Die MW-Rahmenantenne angebracht lassen. SELECTOR: AM							
(1)	BANDKANTE (1)	—	Einen Gleichspannungsmesser zwischen TP8 und TP9 anschließen.	530kHz (531kHz)	(X14-178) L4	1.5V	(a)
(2)	BANDKANTE (2)	—	Einen Gleichspannungsmesser zwischen TP72 und TP73 anschließen.	1610kHz (1602kHz)	(X14-178) TC2	8.0V	(a)
Abstimmungen (1) und (2) mehrere Male wiederholen.							
(3)	HF-ABGLEICH (1)	(D) 600kHz 400Hz, 30% mod	(B)	600kHz	(X14-178) L5	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
(4)	HF-ABGLEICH (2)	(D) 1400kHz 400Hz, 30% mod	(B)	1400kHz	(X14-178) TC1	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
Abstimmungen (3) und (4) mehrere Male wiederholen.							
A U D I O - E M P F A N G S A B T E I L U N G							
①	LEERLAUFSTROM	—	Einen Gleichspannungsmesser über CP1(CP2) anschließen.	VOLUME: -∞	(X07-222) VR1 (L) VR2 (R)	18mV	(e)

ADJUSTMENT/REGLAGES/ABGLEICH

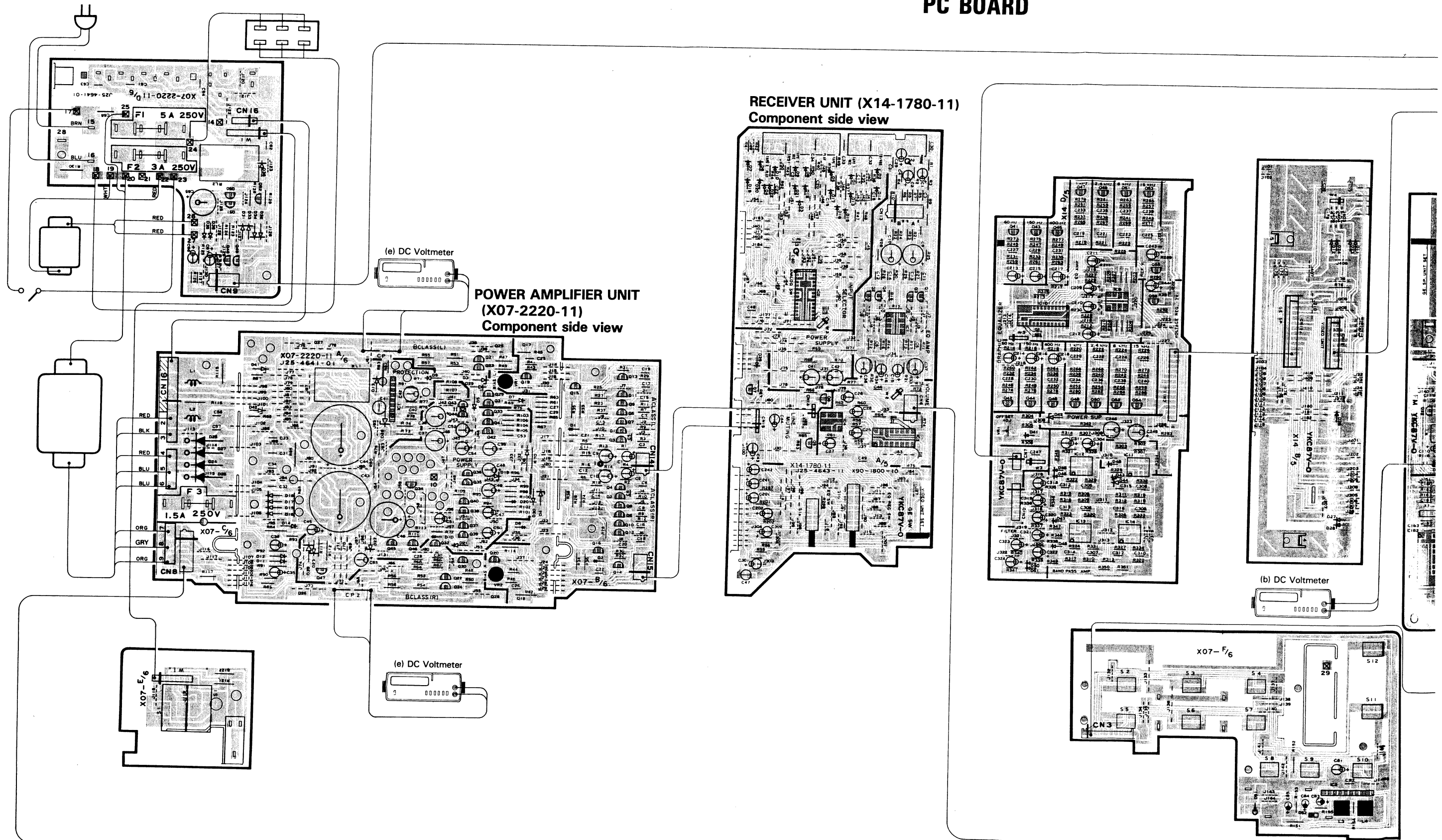
TEST INSTRUMENT	APPAREILLAGE	PRÜFINSTRUMENTE	
Oscilloscope	Oscilloscope	Oszilloskop	SCOPE
AM signal generator.....	Générateur MA	MW-Signalgenerator	AM-SG
FM signal generator.....	Générateur MF	UKW-Signalgenerator	FM-SG
SDK signal generator	Générateur SDK.....	SDK-Signalgenerator	SDK-SG
Audio generator.....	Générateur audio fréquences	NF-Signalgenerator	AG
AC voltmeter.....	Voltmètre CA	Wechselspannungsmesser	
FM multiplex generator.....	Générateur multiplex stéréo	UKW-Multiplexgenerator	FM-MPX
Frequency counter	Fréquencemètre	Frequenzzähler	
DC voltmeter.....	Voltmètre CC	Gleichspannungsmesser	
Distortion meter	Distorsiomètre.....	Klirrfaktormesser	
Dummy antenna	Antenne fictive	Antennennachbildung	



KVR-A70R

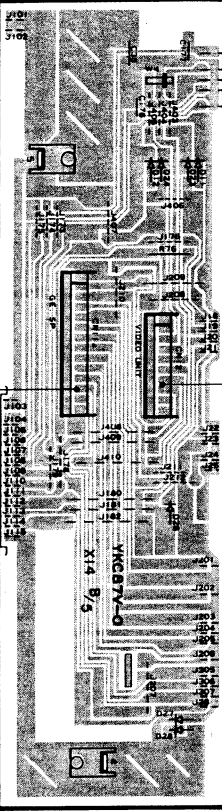
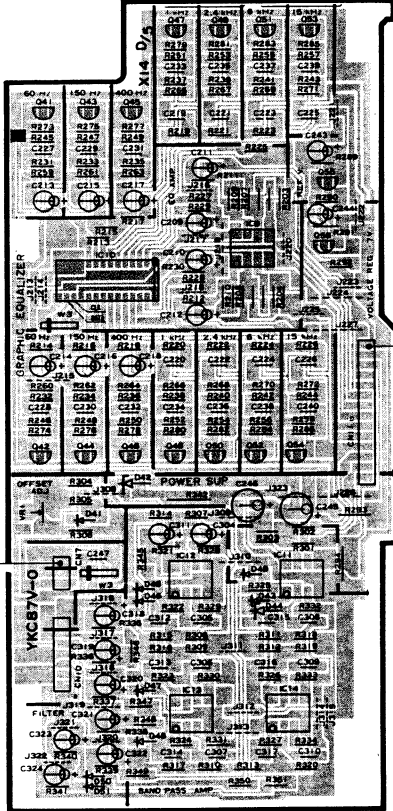
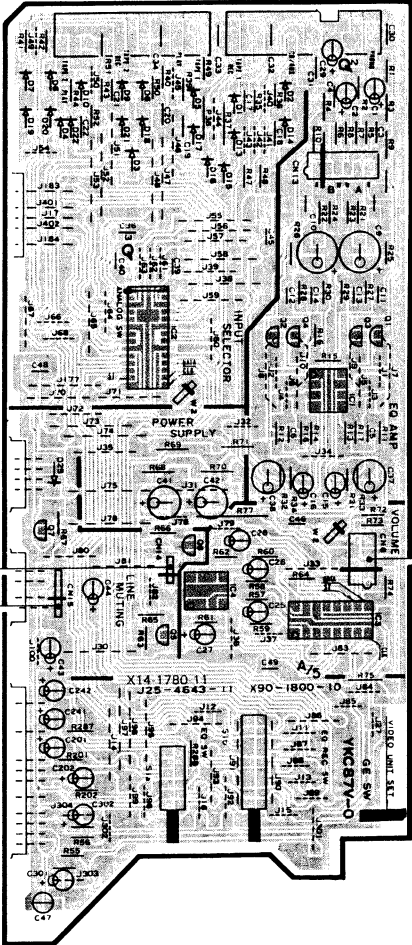
KVR-A70R

PC BOARD

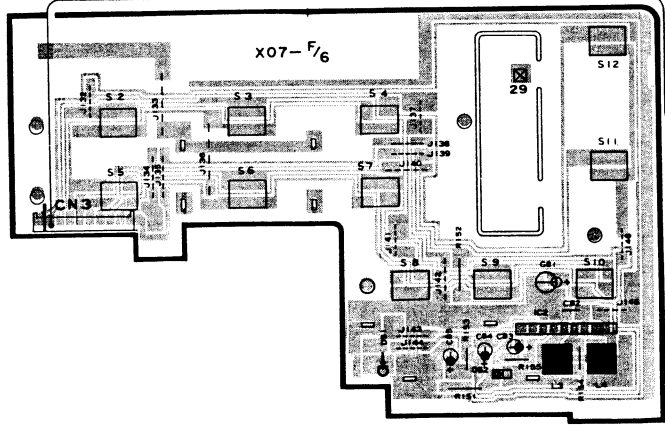
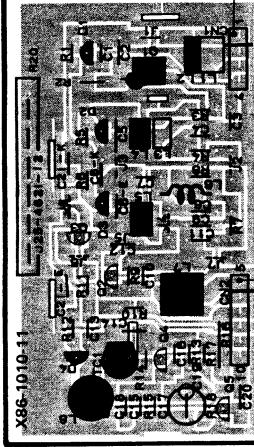


PC BOARD

RECEIVER UNIT (X14-1780-11)
Component side view



FRONT END UNIT
(X86-1010-11)
Component side view



KVR - A70R

H

G

F

E

D

C

B

A

X86-1010-10

Q1	S	—
	D	95V
	G	—

Q2

E	1.1V
C	—
B	—

Q4

E	4.0V
C	—
B	—

Q5

E	0V
C	7.4V
B	—

CN2

5	0V
7	10.3V
9	0V

X14-1780-11 (A/5)

IC1,4	4	—14V
	8	13.4V

IC2

1	—14V
14	0V
28	13.4V

IC3

1	—14V
4	7 0V
13	13 13.4V

CN15

1	—14V
2	0V
3	5V
4	14V

X14-1780-11 (B/5)

CN11a	10	—14V
	12	5V
	13	14V

X14-1780-11 (C/5)

IC5

1	—
2	2.7V
3	—

Q27

4	0V
5	2.4V
6	—

Q30

8	5.6V
10	—
11	11.0V

Q31

12	4.9V
13	1.0V
14	0V

IC6

1	5.6V
2	2.1V
3	2.7V

X14-1780-11 (D/5)

IC9	4	—14V
	8	12.9V

IC10

1	12.9V
2	4.1V
10	0.7V

IC11

11	0V
13	2.1V
14	11.6V

IC12

15	5.5V
16	0.3V
17	2.1V

IC13

18	5.6V
19	2.9V
20	2.9V

IC14

1	10.1V
2	4.4V
3	4.5V

IC15

4	0.3V
5	0V
6	FM: 0V

IC16

7	4.4V
8	4.2V
9	4.4V

IC17

10	4.2V
11	3.7V
12	0V

IC18

13	4.6V
14	2.4V
15	2.2V

IC19

16	2.4V
17	2.4V
18	4.0V

IC20

1	1.6V
2	0V
7	0V

IC21

8	0.8V
9	FM: 12.5V, AM: 0.5V
10	FM: 0.5V, AM: 12.5V

IC22

11	FM: 0.5V, AM: 12.5V
12	FM: 0.5V, AM: 12.5V
13	FM: 2.7V, AM: 0V

IC23

14	FM: 2.7V, AM: 0V
15	0V
16	1.0V

Q26

E	AM: 12.4V
C	FM: 12.4V
B	—

Q27

E	AM: 12.4V
C	—
B	—

Q30

E	12.6V
C	13.3V
B	—

Q31

E	5.6V
C	12.6V
B	—

Q32

E	—
C	12.9V
B	—

Q33

E	—
C	12.9V
B	—

Q34

E	—
C	12.9V
B	—

Q35

E	—
C	12.9V
B	—

Q36

E	—
C	12.9V
B	—

Q37

E	—
C	12.9V
B	—

Q38

E	—
C	12.9V
B	—

Q39

E	—
C	12.9V
B	—

Q40

E	—
C	12.9V
B	—

Q41

E	—
C	12.9V
B	—

Q42

E	—
C	12.9V
B	—

Q43

E	—
C	12.9V
B	—

Q44

E	—
C	12.9V
B	—

Q45

E	—
C	12.9V
B	—

Q46

E	—
C	12.9V
B	—

Q47

E	—
C	12.9V
B	—

Q48

E	—
C	12.9V
B	—

Q49

E	—
C	12.9V
B	—

Q42

E	—14V
C	—
B	—

Q43

E	—
C	—14V
B	—

Q47

E	—28V
C	—
B	—

Q45,46

E	—
C	—19V
B	—

Q45,6,7,8

E	12.5V
C	—
B	—

CN15

1	14V
2	5V
3	0V

Q48

E	5.5V
C	—
B	—

CN9

1	5V
5	0V

Q49

E	—
C	—
B	—

Q50

E	—
C	—
B	—

Q51

E	—
C	—
B	—

Q52

E	—
C	—
B	—

Q53

E	—
C	—
B	—

Q54

E	—
C	—
B	—

Q55

E	—
C	—
B	—

Q56

E	—
C	—
B	—

Q57

E	—
C	—
B	—

Q58

E	—
C	—
B	—

Q59

E	—
C	—
B	—

Q60

E	—
C	—
B	—

Q61

E	—
C	—
B	—

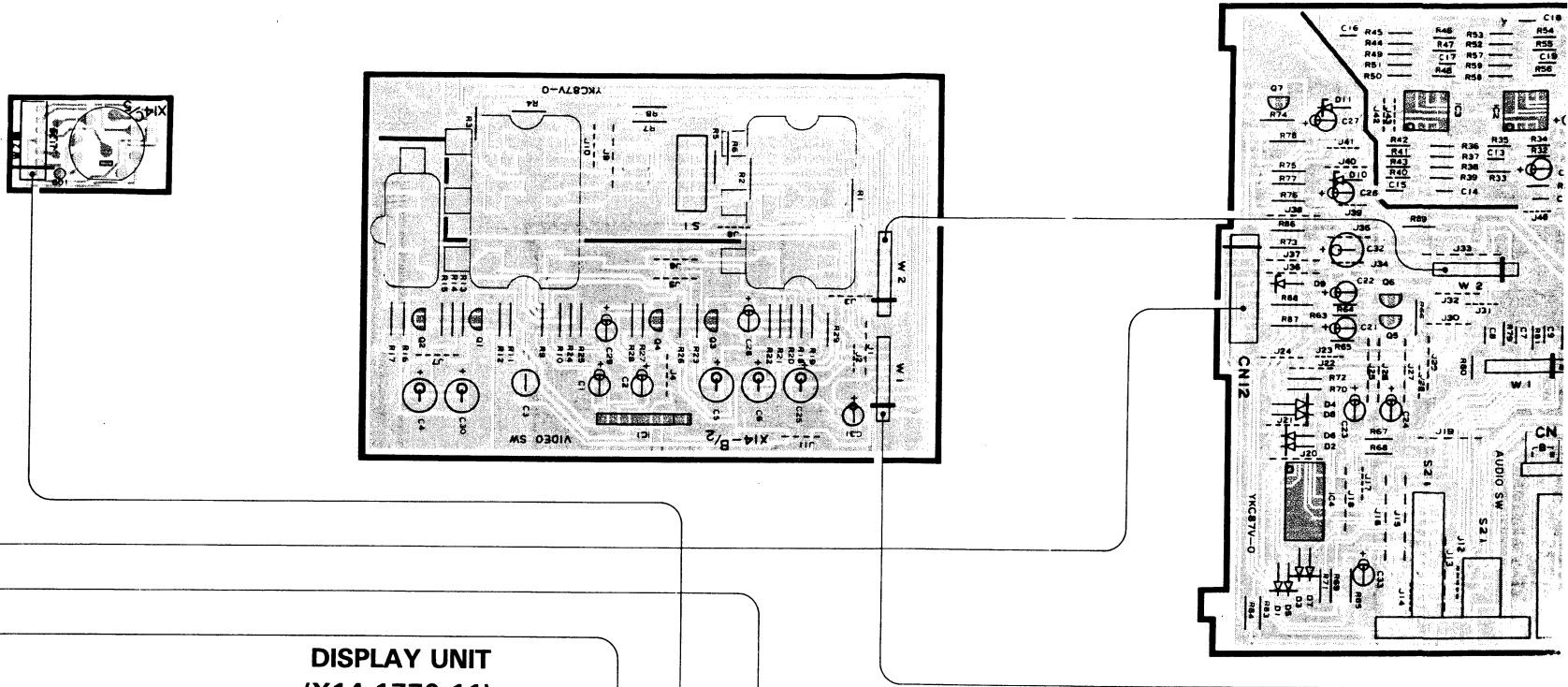
Q62

E	—
C	—
B	—

Refer to the schematic diagram for the values of resistors and capacitors.
The PC board drawing is viewing from the side easy to check.

PC BOARD

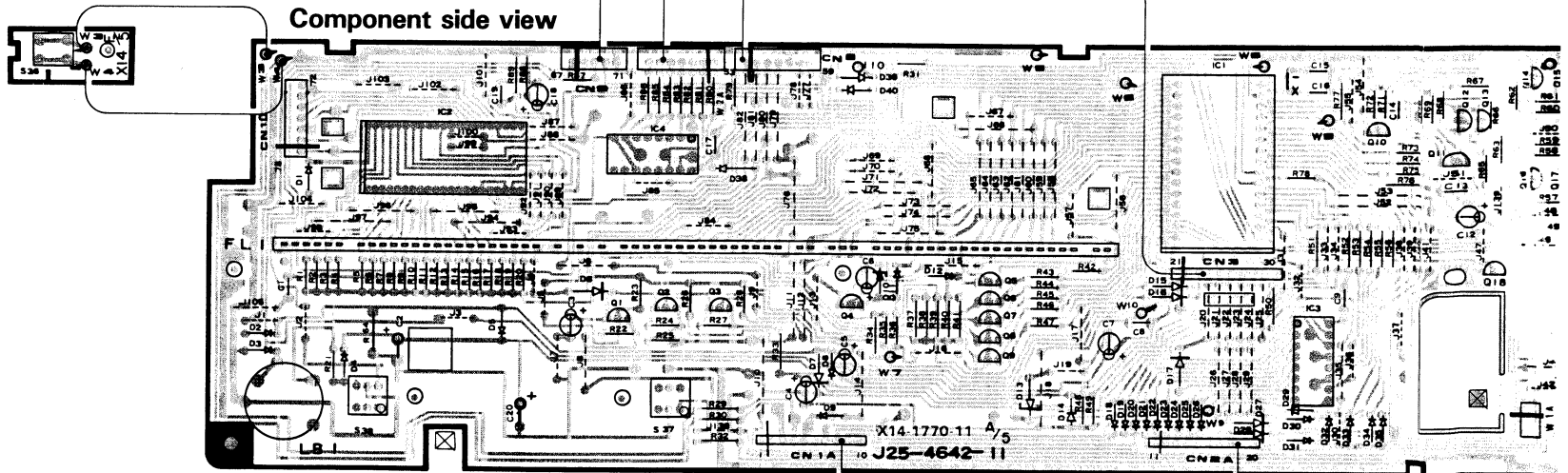
VIDEO CONTROL UNIT (X
Component side view



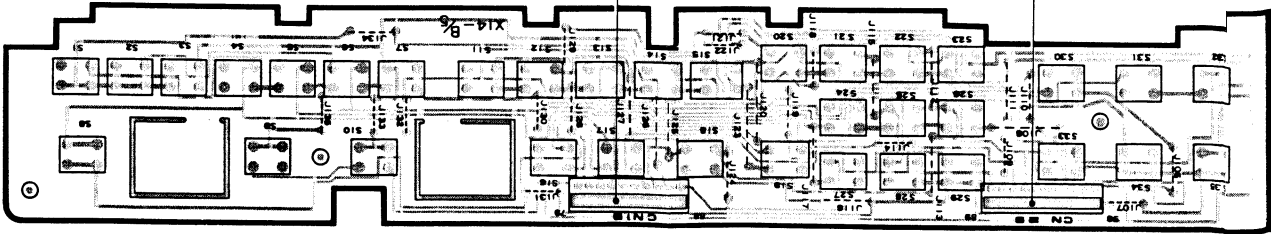
F
B
H
A

DISPLAY UNIT
(X14-1770-11)

Component side view

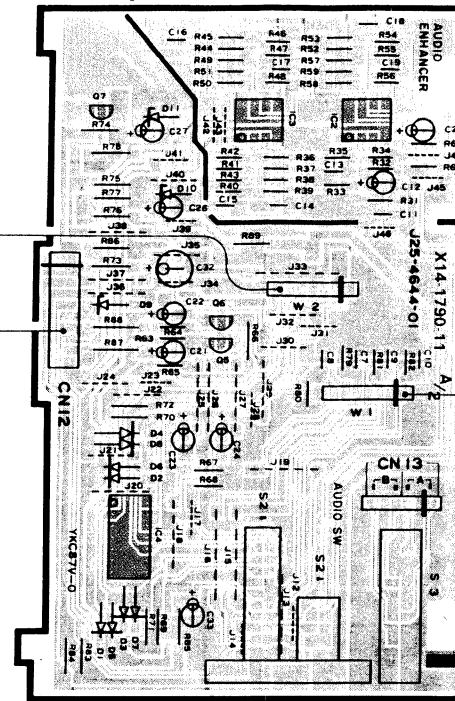
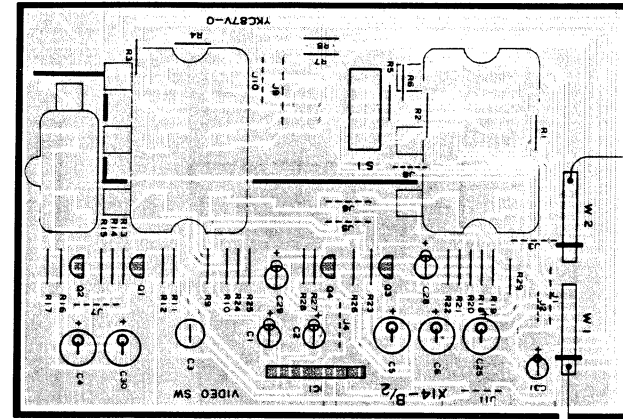


E
D
C
G



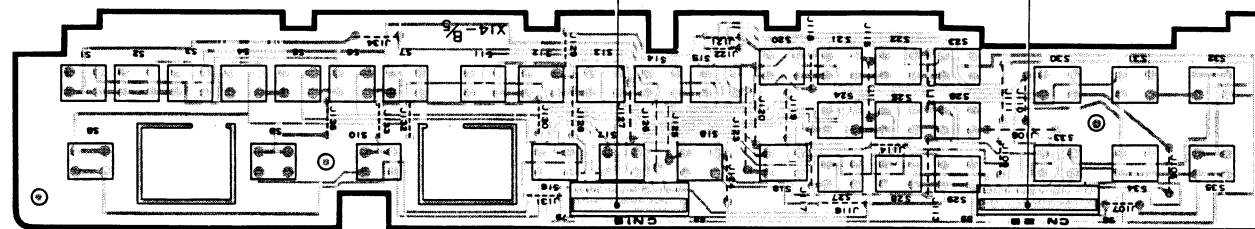
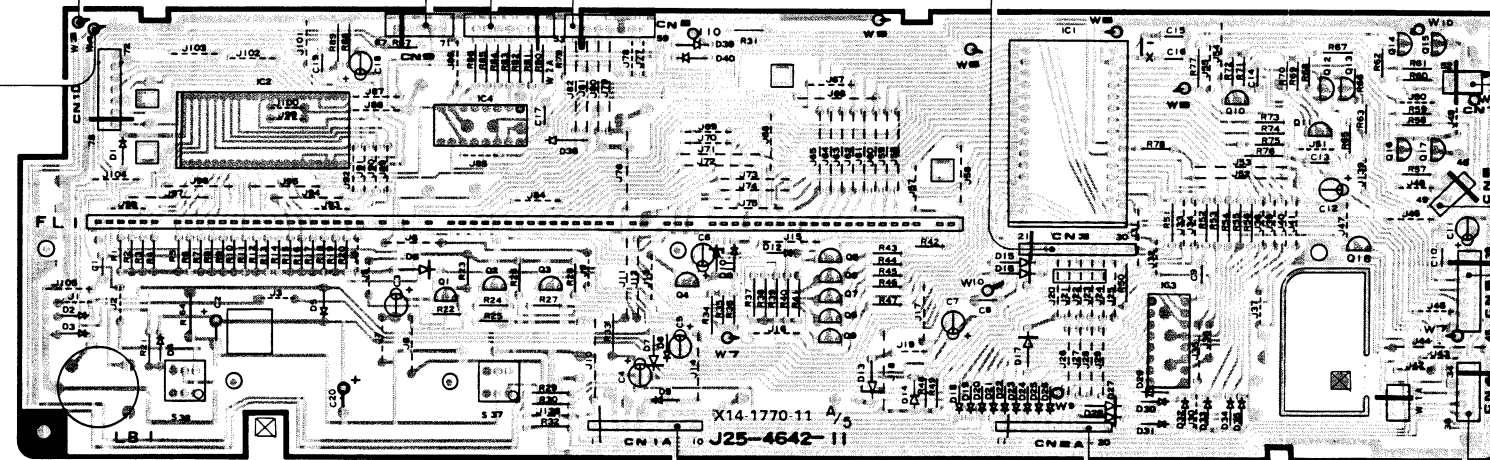
PC BOARD

VIDEO CONTROL UNIT (X14-1790-11) Component side view



DISPLAY UNIT (X14-1770-11)

Component side view



X14-1790-11 (A/2)

IC2	
1	6.2V
2	6.1V
3	0V
4	6.2V
5	11.5V

IC3	
1	6.2V
2	0V
3	6.2V
4	11.5V

IC4	
1	0V
2	-6.2V
3	0V
4	6.1V
5	(-6.1V)
6	6.2V

Q5	
E	-1.6V
C	11.5V
B	-1.2V

Q6	
E	-1.4V
C	11.5V
B	-0.7V

Q7	
E	-6.2V
C	6.1V
B	(-6.1V)
A	-6.2V
B	(-5.6V)

X14-1790-11 (B/2)

IC1	
3	0V
4	4.7V
5	10V
6	5.5V
7	5.6V

Q1	
E	5.5V
C	10V
B	6.1V

Q2	
E	4.9V
C	10V
B	5.5V

Q3	
E	5.1V
C	10V
B	5.7V

Q4	
E	5.1V
C	10V
B	5.7V

X14-1770-11 (A/5)

IC1	
29	0V
32	-28V
57	-28V

Q1, 2, 3	
E	5V
C	-
B	-

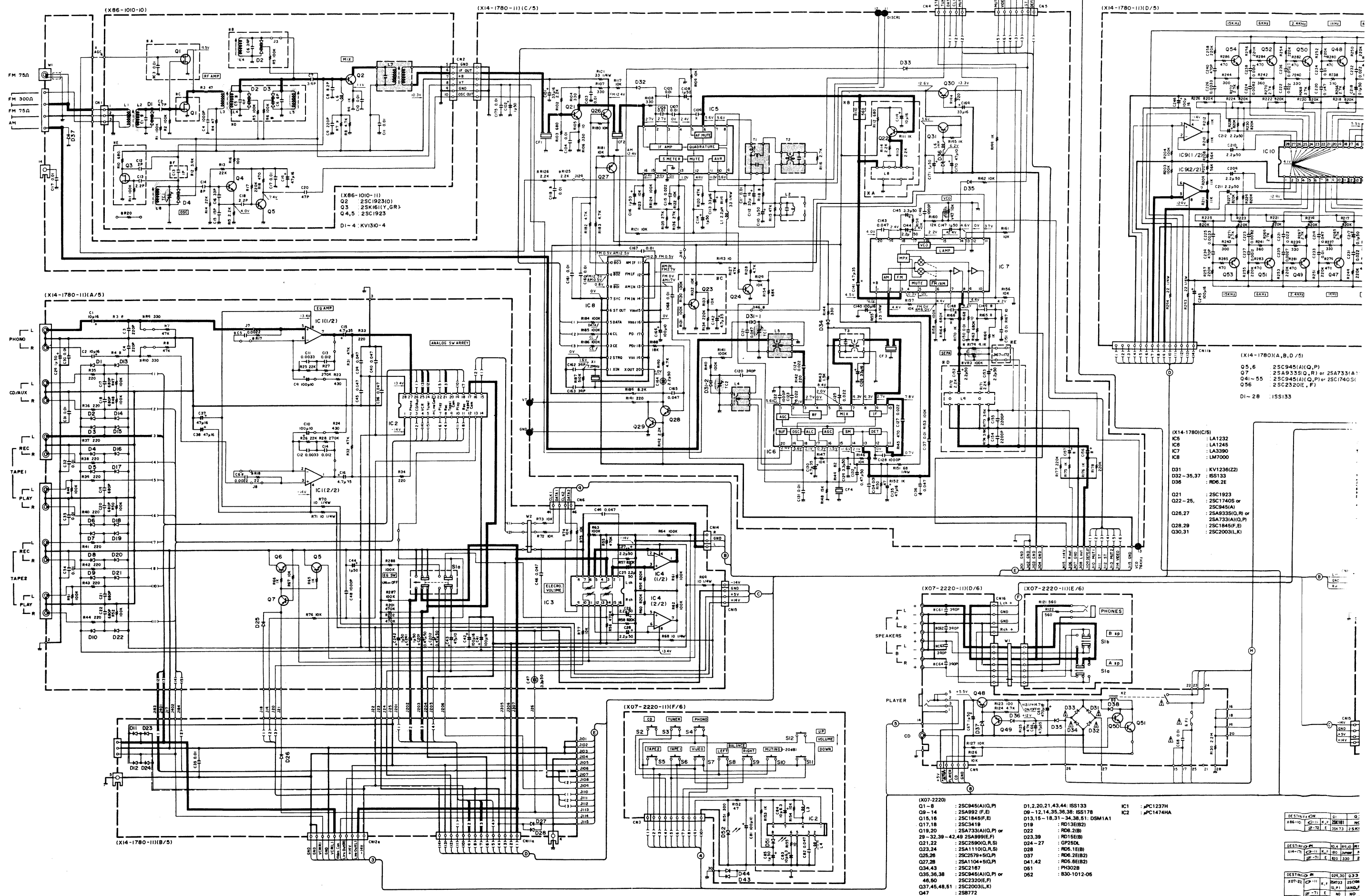
Q4	
E	-28V
C	-
B	-

Q5, 6, 7, 8, 9	
E	-
C	5V
B	-

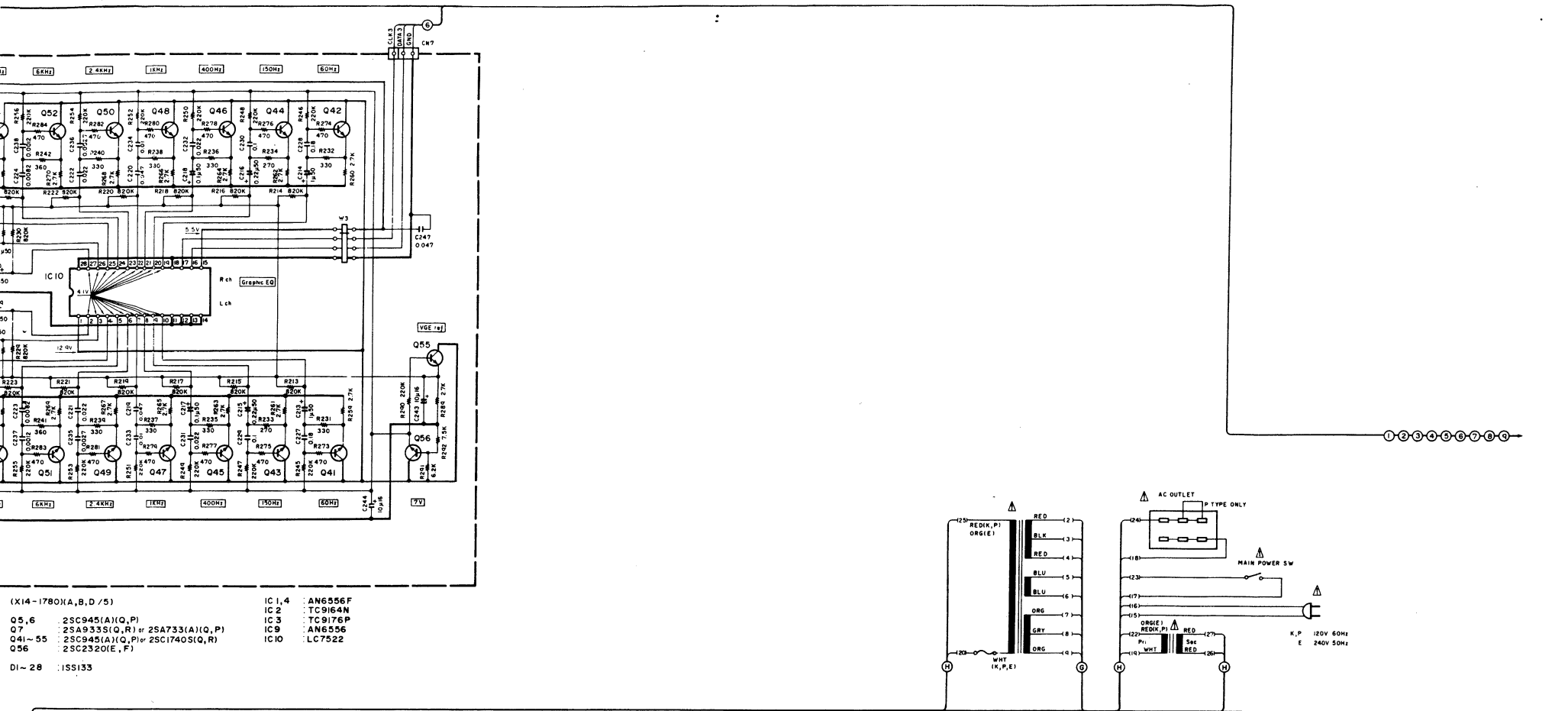
Q10, 11, 12, 13, 14, 15, 16, 17	
E	0V
C	-
B	-

FL1	
24	5.5V
26	5.5V

CN8	
54	5.5V
55	-28V
57	0V

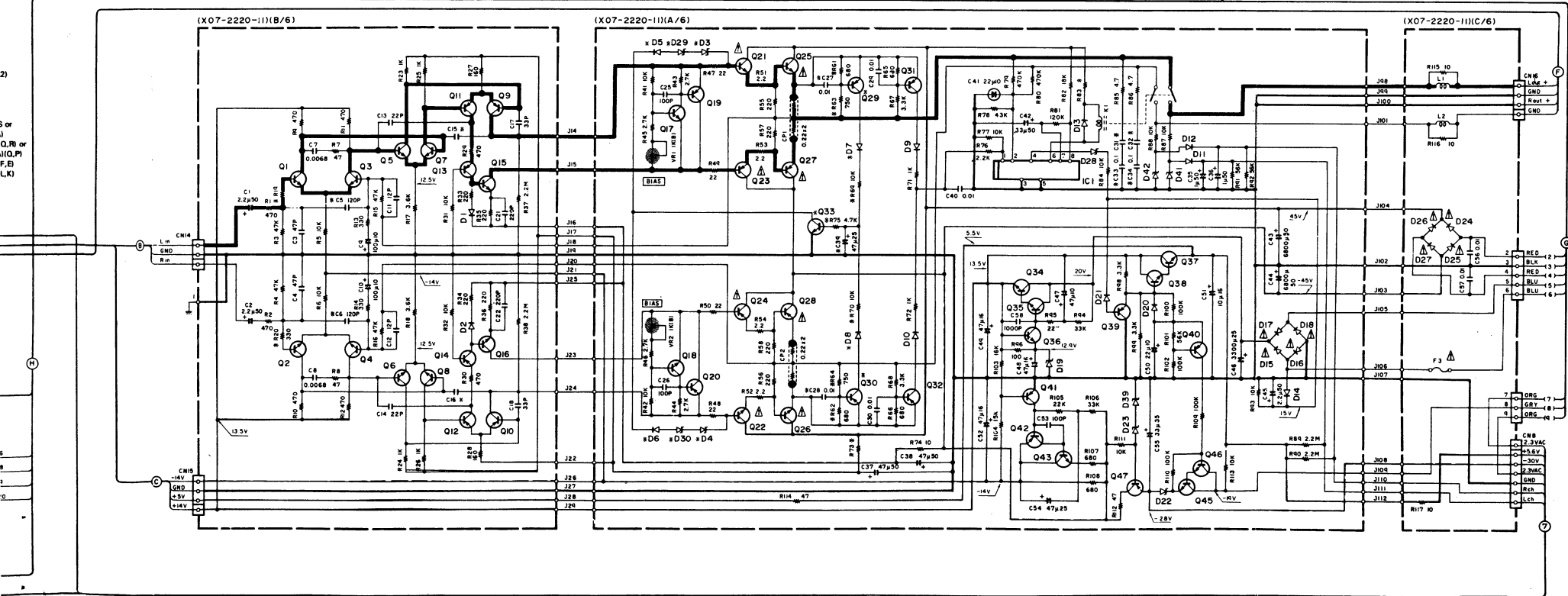


X01-2220)	D1,2,20,21,43,44: ISS133	IC1	: pC1237H
09-14	: 2SA945(A)(Q,P) or	08-12,14,35,36,38: ISS178	IC2
09-14	: 2SA992 (F) or	IC15-18,31-34,38,51: OSM1A1	: pC147AH
09-14	: 2SA945 (A)		
.C17,18	: 2SC349 (E)	D19	: RD13E(B2)
D19,20	: 2SA733(A)(Q,P) or	D22	: RD6,2(B)
29-32,39-42,48	: 2SA2890(Q,R,S)	022,38	: RD115(E)
021,22	: 2SA690(Q,R,S)	034-27	: GP25D
023,24	: 2SA1110(Q,R,S)	038	: RD5,1(E)
026,28	: 2SC2679 (A) or	D27	: RD6,2(E)B2
028,29	: 2SA1104 (A)(Q,P) or	035,42	: RD5,1(E)B2
034,43	: 2SC2167	D51	: PH3028
035,36,38	: 2SA945(A)(Q,P) or	062	: B30-101-2,05
46,60	: 2SC2303(E,F)		
037,45,48,51	: 2SC2003(L)		
Q47	: ZSB772		

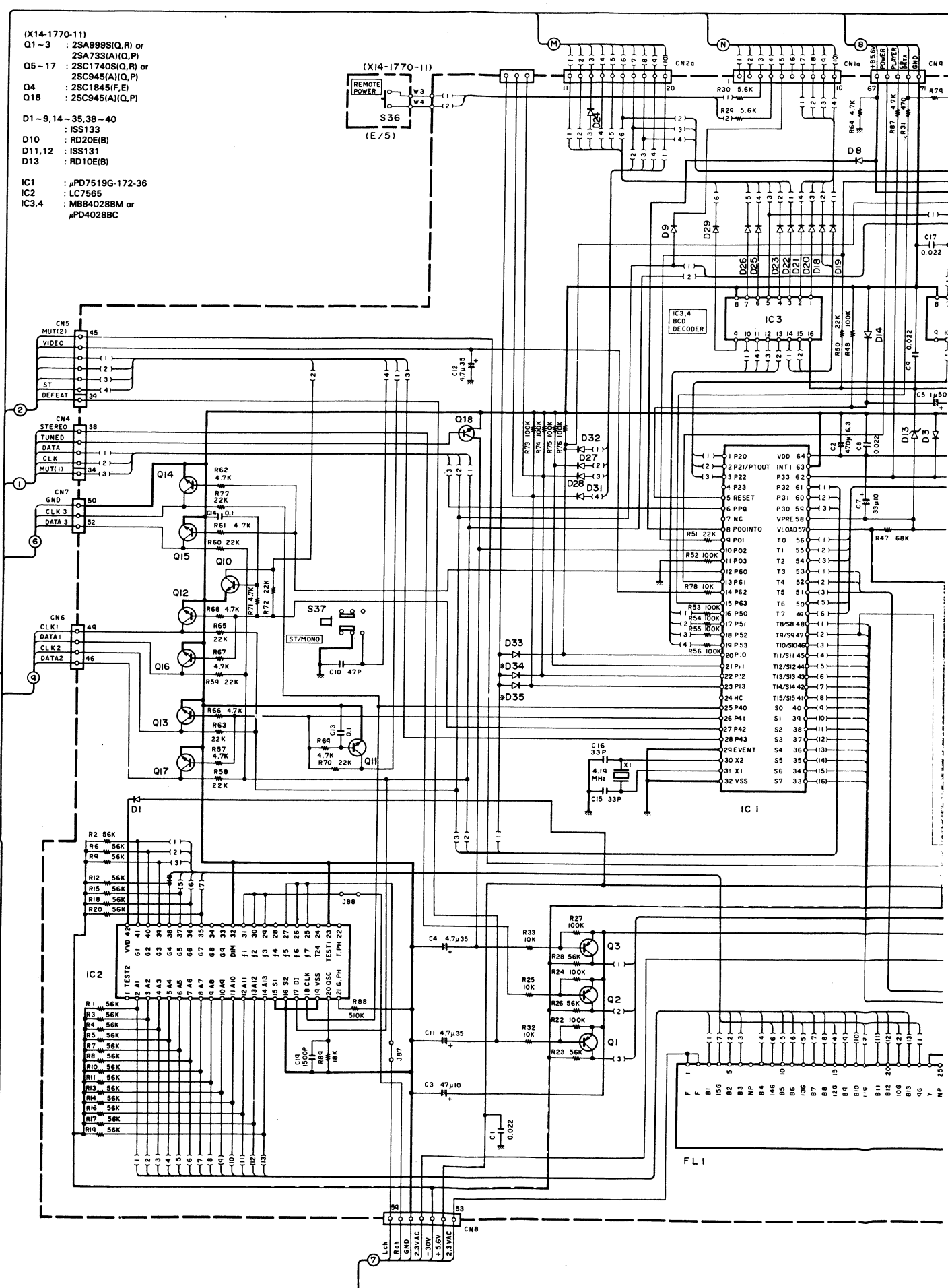


(X14-1780)(A,B,D / S)
Q5,6 : 2SC945(A)(Q,P)
Q7 : 2SA933S(Q,R) or 2SA733(A)(Q,P)
Q41~55 : 2SC945(A)(Q,P) or 2SC1740S(Q,R)
Q56 : 2SC2320(E,F)
DI-28 : ISS133

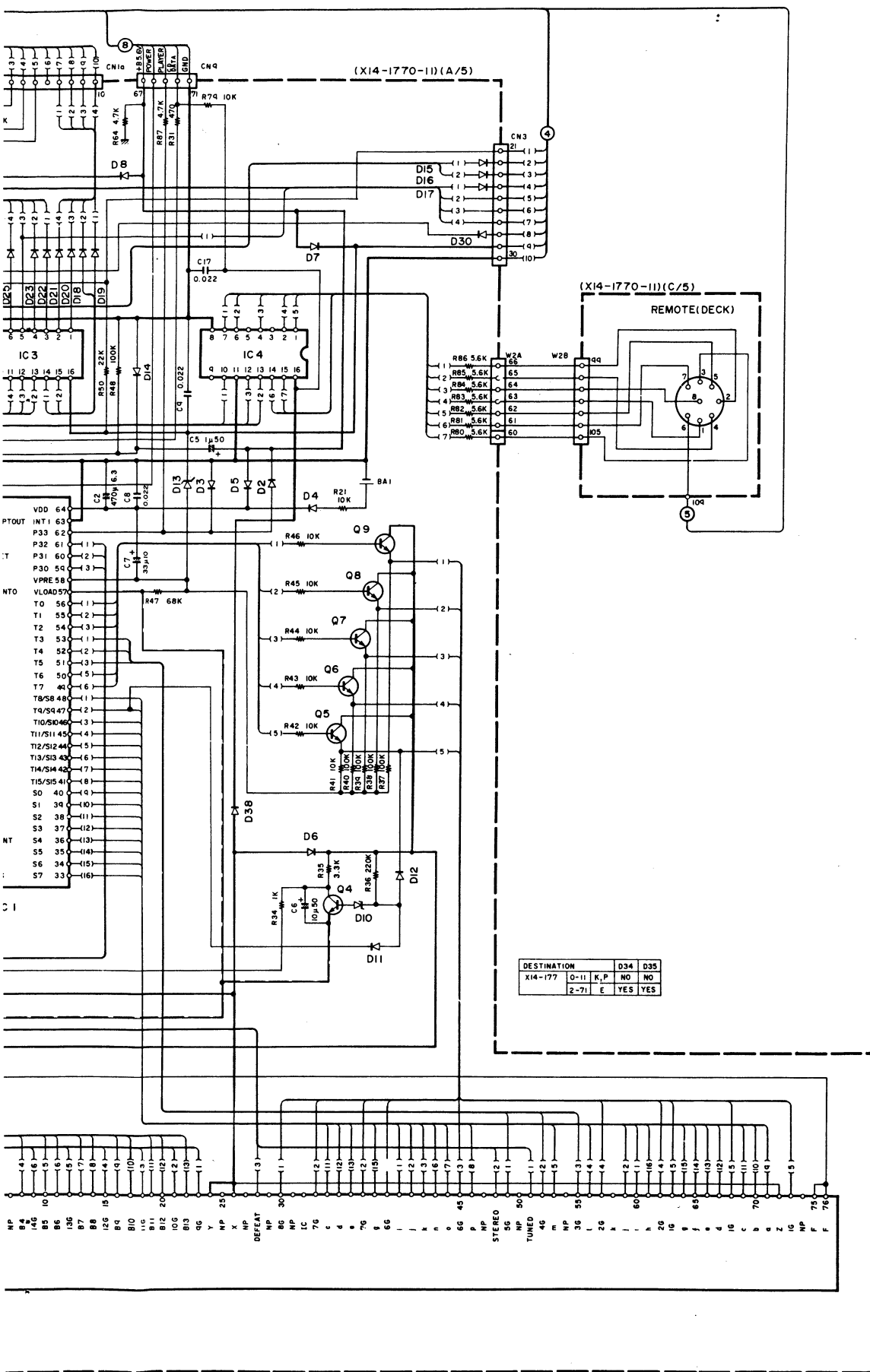
IC 1,4 : AN6556F
IC 2 : TC9164N
IC 3 : TC9176P
IC 8 : AN6556
IC10 : LC7522



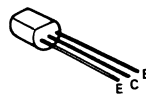
DESTINATION			Q1	Q3	C1	C3	C5	C6	C12	C13	R6	R7	R10	R11	R20	A	B	C	D	E	F
X06-101	Q-11	K.P	28K101	NO	3AP	NO	NO	3AP	NO	1P	NO	22K	NO	NO	Juniper	NO	YES	YES	NO	NO	YES
	2-72	E	35K73	25K161	2.2P	YES	YES	6P	YES	2.2P	YES	33K	YES	YES	22	YES	NO	NO	YES	YES	NO



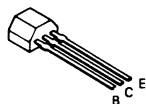
DESTINATION			C7~10
X14-179	0-11	K,P	NO
	2-71	E	YES



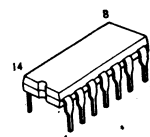
2SA733 (A)
2SC1845
2SC2003
2SC2320
2SC945 (A)



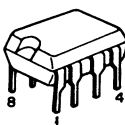
2SA933S
2SC1740S



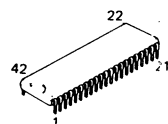
μ PD4028BC
 μ PD4066BC



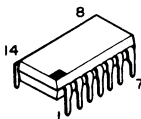
AN6556



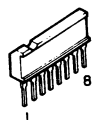
LC7565



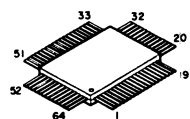
MB84028BM



BA7001



μ PD7519G-172-36



CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

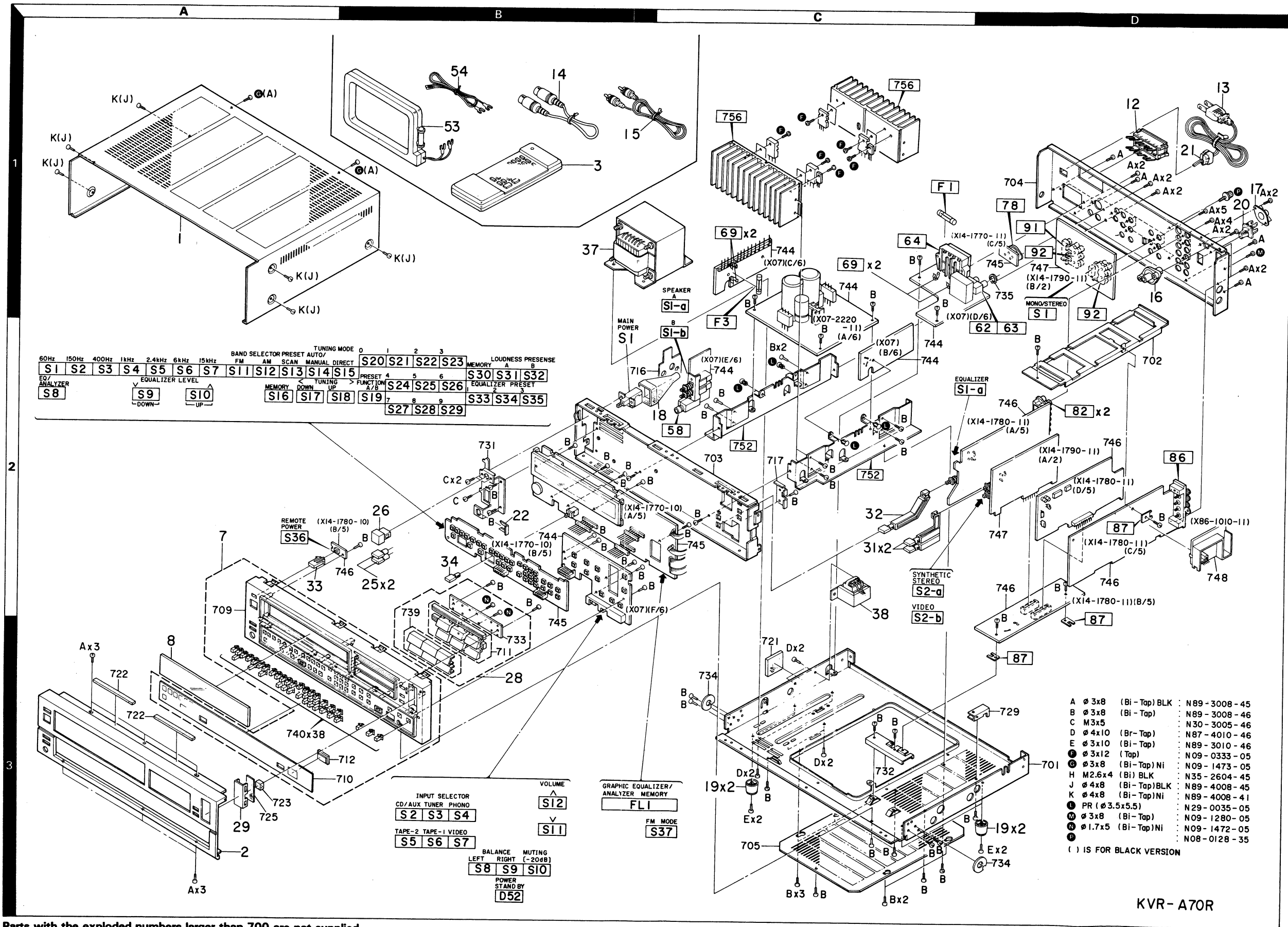
DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Spannungsmesser gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u.U. geringfügig.

KVR-A70R KVR-A70R

EXPLODED VIEW



PARTS LIST

* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
KVR-A70R						
1	1A		A01-1419-02	METALLIC CABINET	KPE	B
1	1A		A01-1420-02	METALLIC CABINET	KP	S
2	3A	*	A20-4376-02	PANEL	KPE	B
2	3A	*	A20-4377-02	PANEL	KP	S
3	1B		A70-0127-05	REMOTE CONTROLLER ASSY		
7	2A	*	B01-0285-01	PANEL ESCUTCHEON ASSY	KPE	B
7	2A	*	B01-0294-01	PANEL ESCUTCHEON ASSY	KP	S
8	3A	*	B10-0584-03	FRONT GLASS		
-			B46-0092-03	WARRANTY CARD	KK	
-			B46-0121-03	WARRANTY CARD	PE	
-			B46-0122-13	WARRANTY CARD	E	
-			B50-5704-00	INSTRUCTION MANUAL (ENGLISH)		
-		*	B50-5705-00	INSTRUCTION MANUAL (FRENCH)	PEP	
-		*	B50-5706-00	INSTRUCTION MANUAL (D, I, G)	E	
-			B58-0245-33	CAUTION CARD (FTZ)	E	
-			B58-0269-04	CAUTION CARD	KK	
12	1D		E03-0055-05	AC OUTLET	E	
12	1D		E03-0068-05	AC OUTLET	PP	
12	1D		E03-0075-05	AC OUTLET	KK	
13	1D		E30-0459-05	AC POWER CORD	E	
13	1D		E30-0780-05	AC POWER CORD	KK	
13	1D		E30-0974-05	AC POWER CORD	PP	
14	1B		E30-0950-05	CORD WITH DIN CONN (CASSETTE)		
15	1B		E30-1360-05	AUDIO CORD (CD)		
16	1D		E04-0006-05	RF COAXIAL CABLE RECEPTACLE	E	
17	1D		E29-0130-04	LEAD PLATE	E	
18	1B		F29-0067-05	INSULATING COVER (POWER SW)	E	
-		*	H01-5475-04	ITEM CARTON CASE	KPE	B
-		*	H01-5601-04	ITEM CARTON CASE	KP	S
-			H10-1800-02	POLYSTYRENE FOAMED FIXTURE		
-			H10-1801-02	POLYSTYRENE FOAMED FIXTURE		
-			H25-0181-04	PROTECTION BAG (150X260X0.05)		
-			H25-0224-04	PROTECTION BAG (800X400)		
-			H25-0232-04	PROTECTION BAG (235X350)		
19	3C, 3D		J02-0126-05	FOOT		
20	1D		J19-0626-12	ANTENNA HOLDER		
21	1D		J42-0083-05	POWER CORD BUSHING		
22	2B		J21-3326-05	JACK MOUNTING HARDWARE		
-			J61-0307-05	WIRE BAND		
25	2B		K27-1304-04	KNOB (BUTTON) SPEAKERS	KPE	B
25	2B		K27-1487-04	KNOB (BUTTON) SPEAKERS	KP	S
26	2B		K29-1446-04	KNOB ASSY(BTN) MAIN POWER	KP	S
26	2B		K29-2001-04	KNOB ASSY(BTN) MAIN POWER	KPE	B
28	3B		K29-2095-03	KNOB ASSY(BTN) SELECTOR	KPE	B
28	3B		K29-2096-03	KNOB ASSY(BTN) SELECTOR	KP	S
29	3A		K29-2105-04	KNOB (BUTTON) VOLUME	KPE	B
29	3A		K29-2106-04	KNOB (BUTTON) VOLUME	KP	S
31	2C		K29-2129-04	KNOB ASSY(BTN) VIDEO, SYNTH		
32	2C		K29-2130-04	KNOB ASSY(BTN) EQUALIZER		
33	2A		K29-2135-04	KNOB (BUTTON) REMOTE POWER		
34	2B		K27-0965-04	KNOB (BUTTON) FM MODE		

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37	1B	*	L01-6671-05	POWER TRANSFORMER (MAIN)	KPKP	
37	1B	*	L01-6672-05	POWER TRANSFORMER (MAIN)	E	
38	2C	*	L01-6681-05	POWER TRANSFORMER (REMOTE)	KPKP	
38	2C	*	L01-6682-05	POWER TRANSFORMER (REMOTE)	E	
G			N09-1473-05	TAPPING SCREW (Ø3X8)	EKP	
M			N09-1280-05	TAPTITE SCREW (Ø3X8)		
N			N09-1472-05	TAPTITE SCREW (Ø1.7X5)		
P	1D		N08-0128-35	BINDING POST (GND)		
S 1	2B		S40-1073-05	PUSH SWITCH (MAIN POWER)		
53	1B		T90-0104-15	LOOP ANTENNA		
54	1B		T90-0132-05	T TYPE ANTENNA		
POWER AMPLIFIER UNIT (X07-2220-11)						
D52			B30-1012-05	LED(SLP-981C-50)		
C1 ,2			CE04FW1H2R2M	ELECTRO 2.2UF 50WV		
C3 ,4			CC45FSL1H470J	CERAMIC 47PF J	E	
C5 ,6			CC45FSL1H121J	CERAMIC 120PF J		
C7 ,8			CF92FV1H682J	MF 6800PF J		
C9 ,10			CE04FW1A101M	ELECTRO 100UF 10WV		
C11 ,12			CC45FSL1H120J	CERAMIC 12PF J		
C13 ,14			CC45FSL1H220J	CERAMIC 22PF J		
C15 ,16			CC45FSL1H010C	CERAMIC 1.0PF C	KPKP	
C15 ,16			CC45FSL1H060D	CERAMIC 6.0PF D	E	
C17 ,18			CC45FSL1H330J	CERAMIC 33PF J		
C21 ,22			CC45FSL1H221J	CERAMIC 220PF J		
C25 ,26			CC45FSL1H101J	CERAMIC 100PF J		
C27 ,30			C91-0769-05	CERAMIC 0.01UF M	KPKP	
C29 ,30			C91-0769-05	CERAMIC 0.01UF M	E	
C31 ,34			CF92FV1H104J	MF 0.10UF J	E	
C31 ,32			CF92FV1H473J	MF 0.047UF J	KPKP	
C35 ,36			CE04FW1H010M	ELECTRO 1.0UF 50WV		
C37 ,38			CE04FW1H470M	ELECTRO 47UF 50WV		
C39			CE04FW1E470M	ELECTRO 47UF 25WV	KPKP	
C40			CK45FF1H103Z	CERAMIC 0.010UF Z		
C41			CE04HW1A220M	NP-ELEC 22UF 10WV		
C42			CE04FW1H330M	ELECTRO 33UF 50WV		
C43 ,44			C90-0366-05	ELECTRO 6800UF 50WV		
C45			CE04FW1H2R2M	ELECTRO 2.2UF 50WV		
C46			CE04FW1E332M	ELECTRO 3300UF 25WV		
C47			CE04FW1A470M	ELECTRO 47UF 10WV		
C48 ,49			CE04FW1C470M	ELECTRO 47UF 16WV		
C50			CE04FW1A220M	ELECTRO 22UF 10WV		
C51			CE04FW1C100M	ELECTRO 10UF 16WV		
C52			CE04FW1C470M	ELECTRO 47UF 16WV		
C53			C91-0745-05	CERAMIC 100PF K		
C54			CE04FW1E470M	ELECTRO 47UF 25WV		
C55			CE04FW1V330M	ELECTRO 33UF 35WV		
C56 ,57			CK45FF1H103Z	CERAMIC 0.010UF Z		
C58			CK45B1H102K	CERAMIC 1000PF K		
C61 ,64			CK45FB1H391K	CERAMIC 390PF K	E	
C65			CE04FW1C471M	ELECTRO 470UF 16WV		
C66			CE04FW1V477M	ELECTRO 4.7UF 35WV		
C67			CE04FW1H010M	ELECTRO 1.0UF 50WV		
C68			C91-0647-05	CERAMIC 0.01UF P		

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C81 C82 C83 ,84 C85		*	CE04FW1A101M CK45FF1H473Z CE04JW0J100M CE04JW1H010M	ELECTRO 100UF 10WV CERAMIC 0.047UF Z ELECTRO 10UF 6.3WV ELECTRO 1.0UF 50WV		
58 62 63 64	2C 1D 1D 1C		E11-0127-05 E11-0152-05 E13-0119-05 E20-0823-05	PHONE JACK (3P) HEADPHONE MINI PHONE JACK (3P) PLAYER PHONE JACK (1P) CD LOCK TERMINAL BOARD(8P) SPKR		
△ F1 △ F1 △ F3 △ F3	1C 1C 1C 1C		F05-2525-05 F06-5022-05 F05-1623-05 F06-1521-05	FUSE (SEMKO) (250V T2.5A) FUSE (UL) (250V 5A) FUSE (SEMKO) (250V T1.6A) FUSE (UL) (250V 1.5A)	E KPKP E KPKP	
69 69	1C 1C		J13-0041-05 J13-0054-05	FUSE CLIP FUSE CLIP	KPKP E	
L1 ,2 L3 ,4			L39-0085-05 L39-0123-05	PHASE-COMPENSATION COIL PEAKING COIL		
F L			N09-0333-05 N29-0035-05	TAPPING SCREW (Ø3X12) PUSH RIVET (Ø3.5X5.5)		
CP1 ,2 R23 -26 R27 ,28 R33 -36 R47 -50		*	R90-0187-05 RD14AB2E102J RD14AB2E161J RD14AB2E221J RD14AB2E220J	MULTI-COMP 0.22X2 K 5W FL-PROOF RD 1.0K J 1/4W FL-PROOF RD 160 J 1/4W FL-PROOF RD 220 J 1/4W FL-PROOF RD 22 J 1/4W		
R51 -54 R55 -58 R73 R73 ,74 R74			RD14AB2E2R2J RD14AB2E221J RD14AB2E220J RD14AB2E100J RD14AB2E100J	FL-PROOF RD 2.2 J 1/4W FL-PROOF RD 220 J 1/4W FL-PROOF RD 22 J 1/4W FL-PROOF RD 10 J 1/4W FL-PROOF RD 10 J 1/4W	KPKP E KPKP	
R83 R83 R85 ,86 R107,108 R112			RS14KB3D681J RS14KB3D821J RS14KB3D4R7J RS14DB3A681J RS14DB3A470J	FL-PROOF RS 680 J 2W FL-PROOF RS 820 J 2W FL-PROOF RS 4.7 J 2W FL-PROOF RS 680 J 1W FL-PROOF RS 47 J 1W	E KPKP	
R114 R115,116 R117 R121,122 R123			RD14AB2E470J RS14DB3A100J RD14AB2E100J RS14DB3A561J RD14AB2E101J	FL-PROOF RD 47 J 1/4W FL-PROOF RS 10 J 1W FL-PROOF RD 10 J 1/4W FL-PROOF RS 560 J 1W FL-PROOF RD 100 J 1/4W		
R130 R152 VR1		*	R92-0173-05 RD14AB2E470J R12-1066-05	RC 2.2M M 1/2W FL-PROOF RD 47 J 1/4W TRIMMING POT. (1K) BIAS	KPKP	
△ K1 K2 S1 S2 -12	1C 3B	*	S51-2058-05 S51-1036-05 S42-2130-05 S40-1064-05	MAGNETIC RELAY MAGNETIC RELAY MULT. PUSH SW (SPEAKERS) PUSH SW (CD/AUX,TUNER, ETC)		
D1 ,2 D3 ,4 D5 -12 D9 -12 D13			1SS133 RD11E(B2) 1SS178 1SS178 DSM1A1	DIODE ZENER DIODE DIODE DIODE DIODE	KPKP KPKP E	
D14 D15 -18			1SS178 DSM1A1	DIODE DIODE		

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D19 D20 ,21 D22 D23 D24 -27			RD13E(B2) 1SS133 RD8.2E(B) RD15E(B) GP25DL	ZENER DIODE DIODE ZENER DIODE ZENER DIODE DIODE		
D28 D29 ,30 D31 -34 D35 ,36 D37			RD5.1E(B) RD16E(B2) DSM1A1 1SS178 RD6.2E(B2)	ZENER DIODE ZENER DIODE DIODE DIODE ZENER DIODE	KPKP	
D38 D39 D41 ,42 D43 ,44 D51			DSM1A1 RD15E(B) RD5.6E(B2) 1SS133 PH302B	DIODE ZENER DIODE ZENER DIODE DIODE PHOTO DIODE		
IC1 IC2 Q1 -8 Q9 -14 Q15 ,16			UPC1237H UPC1474HA 2SC945(A)(Q,P) 2SA992(F,E) 2SC1845(F,E)	IC(PROTECTION) IC(REMOTE CONTROLLER PREAMP) TRANSISTOR TRANSISTOR TRANSISTOR		
Q17 ,18 Q19 ,20 Q19 ,20 Q21 ,22 Q23 ,24		*	2SC3419 2SA733(A)(Q,P) 2SA999(E,F) 2SC2590(Q,R,S) 2SA1110(Q,R,S)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q25 ,26 Q27 ,28 Q29 ,30 Q29 ,30 Q31 ,32		*	2SC2579*5(Q,P) 2SA1104*5(Q,P) 2SA733(A)(Q,P) 2SA999(E,F) 2SA733(A)(Q,P)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	KPKP KPKP	
Q31 ,32 Q33 Q33 Q34 Q35 ,36			2SA999(E,F) 2SC2320(E,F) 2SC945(A)(Q,P) 2SC2167 2SC2320(E,F)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	KPKP KPKP	
Q35 ,36 Q37 Q38 Q38 Q39 -42			2SC945(A)(Q,P) 2SC2003(L,K) 2SC2320(E,F) 2SC945(A)(Q,P) 2SA733(A)(Q,P)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q39 -42 Q43 Q45 Q46 Q46			2SA999(E,F) 2SC2167 2SC2003(L,K) 2SC2320(E,F) 2SC945(A)(Q,P)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q47 Q48 Q49 Q49 Q50			2SB772 2SC2003(L,K) 2SA733(A)(Q,P) 2SA999(E,F) 2SC2320(E,F)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q50 Q51			2SC945(A)(Q,P) 2SC2003(L,K)	TRANSISTOR TRANSISTOR		
DISPLAY UNIT (X14-1770-11)						
C1			CK45FF1H223Z	CERAMIC 0.022UF Z		

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C2 C3 C4 C5 C6		*	CE04DW0J471M CE04W1A470M CE04FW1V4R7M CE04W1H010M CE04W1H100M	ELECTR0 470UF 6.3WV ELECTR0 47UF 10WV ELECTR0 4.7UF 35WV ELECTR0 1.0UF 50WV ELECTR0 10UF 50WV		
C7 C8 ,9 C10 C11 ,12 C13 ,14			CE04W1A330M CK45FF1H223Z CK45FF1H103Z CE04FW1V4R7M CF92FV1H104J	ELECTR0 33UF 10WV CERAMIC 0.022UF Z CERAMIC 0.010UF Z ELECTR0 4.7UF 35WV MF 0.10UF J		
C15 ,16 C17 C19			CC45FSL1H330J CK45FF1H223Z CK45FB1H152K	CERAMIC 33PF J CERAMIC 0.022UF Z CERAMIC 1500PF K		
78	1D		EO6-0805-15	CYLINDRICAL RECEPTACLE (DIN)		
X1		*	L78-0207-05	RESONATOR (4.194MHZ)		
S1 -36 S37	2A,2B 3C	*	S40-1064-05 S40-2343-05	PUSH SW(FUNCTIONS=EQ,TUNER,ETC) PUSH SWITCH (FM MODE)		
D1 -9 D10 D11 ,12 D13 D14 -33		*	1SS133 RD20E(B) 1SS131 RD10E(B) 1SS133	DIODE ZENER DIODE DIODE ZENER DIODE DIODE	KPKP	
D14 -35 D38 -40 FL1 IC1 IC2		*	1SS133 1SS133 FIP18AMW24 UPD7519G-172-36 LC7565	DIODE DIODE FLUORESCENT INDICATOR TUBE IC(MICROPROCESSOR) IC(GRAPHIC EQ FL DISPLAY DR)	E	
IC3 ,4 IC3 ,4 Q1 -3 Q1 -3 Q4		*	MB84028BM UPD4028BC 2SA733(A)(Q,P) 2SA933S(Q,R) 2SC1845(F,E)	IC(BCD-T0-DECIMAL DECODER) IC(BCD-T0-DECIMAL DECODER) TRANSISTOR TRANSISTOR TRANSISTOR		
Q5 -17 Q5 -17 Q18			2SC1740S(Q,R) 2SC945(A)(Q,P) 2SC945(A)(Q,P)	TRANSISTOR TRANSISTOR TRANSISTOR		
RECEIVER UNIT (X14-1780-11)						
C1 ,2 C3 ,4 C5 ,6 C9 ,10 C11 ,12			CE04FW1C100M C91-0749-05 CF92FV1H222J CE04FW1A101M CF92FV1H332J	ELECTR0 10UF 16WV CERAMIC 220PF K MF 2200PF J ELECTR0 100UF 10WV MF 3300PF J	E	
C13 ,14 C15 ,16 C17 -22 C25 -28 C29		*	CF92FV1H123J CE04FW1V4R7M C91-0755-05 CE04FW1H2R2M CE04FW1H010M	MF 0.012UF J ELECTR0 4.7UF 35WV CERAMIC 680PF K ELECTR0 2.2UF 50WV ELECTR0 1.0UF 50WV		
C30 -35 C36 C37 ,38 C39 ,40 C41 ,42			C91-0769-05 CK45FF1H473Z CE04FW1C470M CK45FF1H473Z CE04FW1C101M	CERAMIC 0.01UF M CERAMIC 0.047UF Z ELECTR0 47UF 16WV CERAMIC 0.047UF Z ELECTR0 100UF 16WV		
C43			CE04FW1A470M	ELECTR0 47UF 10WV		

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C44			CE04FW1H010M	ELECTR0 1.0UF 50WV		
C45, 46			CK45FF1H473Z	CERAMIC 0.047UF Z		
C47			CE04HW1H3R3M	NP-ELEC 3.3UF 50WV		
C48			CK45FB1H102K	CERAMIC 1000PF K		
C49			CK45FF1H473Z	CERAMIC 0.047UF Z		
C101			CE04FW1C330M	ELECTR0 33UF 16WV		
C102			CE04FW1H010M	ELECTR0 1.0UF 50WV		
C103-107			C91-0769-05	CERAMIC 0.01UF M		
C108			CE04FW1H010M	ELECTR0 1.0UF 50WV	E	
C109			C91-0745-05	CERAMIC 100PF K		
C109		*	C91-0751-05	CERAMIC 330PF K	KPKP	
C110			CE04FW1H010M	ELECTR0 1.0UF 50WV		
C111			C91-0769-05	CERAMIC 0.01UF M		
C112, 113			CE04FW1C330M	ELECTR0 33UF 16WV		
C114			CE04FW1H010M	ELECTR0 1.0UF 50WV		
C115			CK45FF1H223Z	CERAMIC 0.022UF Z		
C116			CE04FW1H010M	ELECTR0 1.0UF 50WV		
C117			C91-0769-05	CERAMIC 0.01UF M	E	
C118			C91-0769-05	CERAMIC 0.01UF M	E	
C119			CE04FW1C100M	ELECTR0 10UF 16WV		
C120			C009FS1H391JY0	POLYSTY 390PF J		
C121			CK45FF1H473Z	CERAMIC 0.047UF Z		
C122			C91-0757-05	CERAMIC 0.001UF K		
C123-125			CK45FF1H223Z	CERAMIC 0.022UF Z		
C126			CE04FW1C330M	ELECTR0 33UF 16WV		
C127			CK45FF1H223Z	CERAMIC 0.022UF Z		
C128			C91-0757-05	CERAMIC 0.001UF K		
C129			CE04FW1H3R3M	ELECTR0 3.3UF 50WV		
C130			CE04FW1V4R7M	ELECTR0 4.7UF 35WV		
C131			C91-0769-05	CERAMIC 0.01UF M		
C132			CE04FW1HR47M	ELECTR0 0.47UF 50WV		
C134			C91-0769-05	CERAMIC 0.01UF M		
C135			CE04FW1C470M	ELECTR0 47UF 16WV		
C136			CF92FV1H473J	MF 0.047UF J		
C137			CF92FV1H103J	MF 0.010UF J		
C140			CE04FW1C101M	ELECTR0 100UF 16WV		
C141			CE04FW1V4R7M	ELECTR0 4.7UF 35WV	KPKP	
C141, 142			CE04FW1V4R7M	ELECTR0 4.7UF 35WV	E	
C143			CF92FV1H473J	MF 0.047UF J		
C144			CE04FW1H2R2M	ELECTR0 2.2UF 50WV		
C145			CE04FW1H3R3M	ELECTR0 3.3UF 50WV		
C146			C009FS1H102JY0	POLYSTY 1000PF J		
C147			CE04FW1H010M	ELECTR0 1.0UF 50WV		
C148			CK45FB1H471K	CERAMIC 470PF K	E	
C148, 149			CF92FV1H132J	MF 1300PF J	KPKP	
C150, 151			C91-0769-05	CERAMIC 0.01UF M		
C152, 153			CE04FW1H2R2M	ELECTR0 2.2UF 50WV	E	
C154, 155			CF92FV1H222J	MF 2200PF J	E	
C156, 157			CE04FW1C100M	ELECTR0 10UF 16WV	E	
C156, 157			CE04FW1H010M	ELECTR0 1.0UF 50WV	KPKP	
C160, 161			C91-0769-05	CERAMIC 0.01UF M		
C162, 163			CC45FCH1H390J	CERAMIC 39PF J		
C164			CE04HW1H2R2M	NP-ELEC 2.2UF 50WV		
C165			CF92FV1H473J	MF 0.047UF J		
C166			CE04FW1A101M	ELECTR0 100UF 10WV		

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C167,168 C169 C170 C171 C175			C91-0769-05 CE04FW1C330M CE04FW1A470M CE04FW1H010M C91-0769-05	CERAMIC 0.01UF M ELECTR0 33UF 16WV ELECTR0 47UF 10WV ELECTR0 1.0UF 50WV CERAMIC 0.01UF M		
C201,202 C209-212 C213,214 C215,216 C217,218			CE04FW1HR47M CE04FW1H2R2M CE04FW1H010M CE04FW1HR22M CE04FW1HOR1M	ELECTR0 0.47UF 50WV ELECTR0 2.2UF 50WV ELECTR0 1.0UF 50WV ELECTR0 0.22UF 50WV ELECTR0 0.1UF 50WV		
C219,220 C221,222 C223,224 C225,226 C227,228			CF92FV1H473J CF92FV1H223J CF92FV1H822J CF92FV1H332J CF92FV1H184J	MF 0.047UF J MF 0.022UF J MF 8200PF J MF 3300PF J MF 0.18UF J		
C229,230 C231,232 C233,234 C235,236 C237,238			CF92FV1H104J CF92FV1H223J CF92FV1H103J CF92FV1H272J CF92FV1H122J	MF 0.10UF J MF 0.022UF J MF 0.010UF J MF 2700PF J MF 1200PF J		
C239,240 C241,242 C243,244 C245,246 C247			CK45FB1H471K CE04FW1H010M CE04FW1C100M CE04FW1C101M CK45FF1H473Z	CERAMIC 470PF K ELECTR0 1.0UF 50WV ELECTR0 10UF 16WV ELECTR0 100UF 16WV CERAMIC 0.047UF Z		
TC1 ,2			C05-0303-05	CERAMIC TRIMMER CAPACITOR(20PF)		
82 86 87	2D 2D 2D,3D		E13-0621-05 E20-0452-05 E23-0125-05	PHONE JACK (6P) AUDIO INPUT SCREW TERMINAL BOARD(4P) ANT TERMINAL (GND)		
CF1 ,2 CF1 ,2 CF3 CF4 L1			L72-0140-05 L72-0190-05 L72-0099-05 L72-0096-05 L40-2292-14	CERAMIC FILTER CERAMIC FILTER CERAMIC FILTER CERAMIC FILTER SMALL FIXED INDUCTOR(2.2UH,M)	KPKP E	
L2 L4 L5 L6 L8		*	L39-0128-05 L32-0277-15 L31-0509-05 L40-1021-14 L79-0125-05	PEAKING COIL MW OSCILLATING COIL MW-RF COIL SMALL FIXED INDUCTOR(1.0MH,K) LC FILTER	E E	
L9 T1 T2 T3 X1			L79-0154-05 L30-0403-05 L30-0404-05 L30-0362-05 L77-0578-05	LC FILTER FM IFT FM IFT AM IFT CRYSTAL RESONATOR(7.2MHZ)	E	
R68 -71 R101 R119 R151 R155			RD14AB2E100J RD14GB2E330J RD14AB2E330J RD14AB2E330J RD14AB2E330J	FL-PROOF RD 10 J 1/4W FL-PROOF RD 33 J 1/4W FL-PROOF RD 33 J 1/4W FL-PROOF RD 33 J 1/4W FL-PROOF RD 33 J 1/4W		
R293,294 VR2 VR3			RD14AB2E220J R12-3096-05 R12-5046-05	FL-PROOF RD 22 J 1/4W TRIMMING P0T. (10K) VCO TRIMMING P0T. (100K) SEPA	E	
S1	2C		S40-4066-05	PUSH SW (EQ)		

E: Scandinavia & Europe

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P: Canada

Destination

K,P: KVR-A70R (Silver)

Others: KVR-A70R (Black)

S: South Africa

T: England

U: PX(Far East, Hawaii)

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⚠ indicates safety critical components.

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D1 -28 D31 D32 -35 D36 D37			1SS133 KV1236(Z2) 1SS133 RD6.2E(B) 1SS133	DIODE VARIABLE CAPACITANCE DIODE DIODE ZENER DIODE DIODE		
IC1 IC2 IC3 IC4 IC5		*	AN6556F TC9164N TC9176P AN6556F LA1232	IC(OP AMP X2) IC(16CH BILATERAL SELECTOR SW) IC(2CH ELECTRONIC VOLUME) IC(OP AMP X2) IC(FM IF/DETECTION)		
IC6 IC7 IC8 IC9 IC10		*	LA1245 LA3390 LM7000 AN6556 LC7522	IC(AM) IC(FM MPX) IC(PLL FREQUENCY SYNTHESIZER) IC(OP AMP X2) IC(7CH GRAPHIC EQUALIZER)		
Q5 ,6 Q7 Q7 Q21 Q22 -24			2SC945(A)(Q,P) 2SA733(A)(Q,P) 2SA933S(Q,R) 2SC1923 2SC1740S(Q,R)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	E	
Q22 -24 Q24 Q24 Q26 ,27 Q26 ,27			2SC945(A)(Q,P) 2SC1740S(Q,R) 2SC945(A)(Q,P) 2SA733(A)(Q,P) 2SA933S(Q,R)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	E KPKP KPKP	
Q28 ,29 Q30 ,31 Q41 -55 Q41 -55 Q56			2SC1845(F,E) 2SC2003(L,K) 2SC1740S(Q,R) 2SC945(A)(Q,P) 2SC2320(E,F)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
VIDEO CONTROL UNIT (X14-1790-11)						
C1 ,2 C3 C4 C5 ,6 C7 -11		*	CE04FW1C330M CE04HW1C220M CE04DW1A471M CE04DW1A331M CK45FB1H561K	ELECTRO 33UF 16WV NP-ELEC 22UF 16WV ELECTRO 470UF 10WV ELECTRO 330UF 10WV CERAMIC 560PF K	E	
C11 C12 C14 C15 C16			CK45FB1H561K CE04FW1H010M CF92FV1H123J CF92FV1H332J CF92FV1H123J	CERAMIC 560PF K ELECTRO 1.0UF 50WV MF 0.012UF J MF 3300PF J MF 0.012UF J	KPKP	
C17 C18 C19 C20 C21 ,22			CF92FV1H332J CF92FV1H123J CF92FV1H332J CE04FW1C100M CE04FW1H010M	MF 3300PF J MF 0.012UF J MF 3300PF J ELECTRO 10UF 16WV ELECTRO 1.0UF 50WV		
C23 ,24 C25 C26 ,27 C28 ,29 C31		*	CE04FW1V4R7M CE04DW1C331M CE04FW1A470M CE04FW1C330M CE04FW1A470M	ELECTRO 4.7UF 35WV ELECTRO 330UF 16WV ELECTRO 47UF 10WV ELECTRO 33UF 16WV ELECTRO 47UF 10WV		
C32 C33			CE04FW1C101M CE04FW1V4R7M	ELECTRO 100UF 16WV ELECTRO 4.7UF 35WV		
91	1D		E13-0227-05	PHONE JACK (2P) MONITOR OUT		

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92	1D		E13-0625-05	PHONE JACK (6P) VIDEO		
R76			RD14AB2E101J	FL-PROOF RD 100 J 1/4W		
R86			RD14AB2E101J	FL-PROOF RD 100 J 1/4W		
R89			RD14AB2E101J	FL-PROOF RD 100 J 1/4W		
S1	1D	*	S31-2096-05	SLIDE SWITCH (MONO/STEREO)		
S2	2C	*	S42-2131-05	MULT. PUSH SW (SYNTH. VIDEO)		
D1 -8			1S5133	DIODE		
D1 -8			1S2076	DIODE		
D9			RD10E(B)	ZENER DIODE		
D10 ,11			RD8.2E(B)	ZENER DIODE		
IC1			BA7001	IC(SWITCHER FOR VCR)		
IC2 ,3			AN6556	IC(OP AMP X2)		
IC4			UPD4066BC	IC(BILATERAL SWITCH X4)		
Q1			2SC2320(E,F)	TRANSISTOR		
Q1			2SC945(A)(Q,P)	TRANSISTOR		
Q2			2SC2003(L,K)	TRANSISTOR		
Q3 ,4			2SC2320(E,F)	TRANSISTOR		
Q5 ,6			2SC1845(F,E)	TRANSISTOR		
Q7			2SC2320(E,F)	TRANSISTOR		
Q7			2SC945(A)(Q,P)	TRANSISTOR		
FRONT END UNIT (X86-1010-11)						
C1		*	C91-0713-05	CERAMIC 2.2PF K	E	
C1		*	C91-0716-05	CERAMIC 3.9PF K	KPKP	
C2			CC45FSL1H470J	CERAMIC 47PF J		
C3			C91-0769-05	CERAMIC 0.01UF M	E	
C4			C91-0757-05	CERAMIC 0.001UF K		
C5		*	CC45FSL1H090D	CERAMIC 9.0PF D	E	
C6			CC45FSL1H060D	CERAMIC 6.0PF D	E	
C6 ,7		*	C91-0716-05	CERAMIC 3.9PF K	KPKP	
C7		*	C91-0716-05	CERAMIC 3.9PF K	E	
C8		*	C91-0720-05	CERAMIC 8.2PF K		
C9			C91-0749-05	CERAMIC 220PF K		
C10 ,11			C91-0769-05	CERAMIC 0.01UF M		
C12			CC45FSL1H020C	CERAMIC 2.0PF C	E	
C13			C91-0709-05	CERAMIC 1PF M	KPKP	
C13		*	C91-0713-05	CERAMIC 2.2PF K	E	
C14		*	CC45FUJ1H080D	CERAMIC 8.0PF D		
C15		*	C91-0725-05	CERAMIC 15PF J		
C16			C91-0733-05	CERAMIC 33PF J		
C17			C91-0769-05	CERAMIC 0.01UF M		
C18		*	C91-0713-05	CERAMIC 2.2PF K		
C19			CE04FW1C470M	ELECTRO 47UF 16WV		
C20			CC45FSL1H470J	CERAMIC 47PF J		
TC1			C05-0302-05	CERAMIC TRIMMER CAPACITOR(11PF)		
L1			L31-0512-05	FM-RF COIL		
L2			L31-0513-05	FM-RF COIL		
L3			L31-0515-05	FM-RF COIL		
L4			L31-0514-05	FM-RF COIL		
L4 ,5			L31-0514-05	FM-RF COIL	KPKP	
L6			L40-1092-14	SMALL FIXED INDUCTOR(1UH,M)	E	
L7		*	L30-0427-05	FM IFT		
L8		*	L32-0318-05	FM OSCILLATING COIL		

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Destination

K.P: KVR-A70R (Silver)

Others: KVR-A70R (Black)

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R16			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
D1 -4			KV1310-4	VARIABLE CAPACITANCE DIODE	E	
D1 .2			KV1310-3	VARIABLE CAPACITANCE DIODE	KPKP	
D4			KV1310-3	VARIABLE CAPACITANCE DIODE	KPKP	
Q1			2SK161 (GR)	FET	KPKP	
Q1			3SK73 (GR)	FET	E	
Q2			2SC1923 (Ø)	TRANSISTOR		
Q3			2SK161 (Y, GR)	FET	E	
Q4 .5			2SC1923	TRANSISTOR		

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SPECIFICATIONS

Audio Section (IHF '66)

Power Output

55 watts per channel minimum RMS, both channel driven at 8 ohms from 20 Hz to 20,000 Hz with no more than 0.008% total harmonic distortion

60 watts per channel minimum RMS, both channel driven at 8 ohms from 40 Hz to 20,000 Hz with no more than 0.03% total harmonic distortion

63 watts per channel minimum RMS, both channel driven into 8 ohms at 1 kHz with no more than 0.008% total harmonic distortion

Total Harmonic Distortion

(20 Hz - 20,000 Hz,

8 ohms) 0.008% at 55 watts

(1 kHz, 8 ohms) 0.002% at 55 watts

Inter Modulation Distortion 0.008% at 55 watts

Input Sensitivity/Impedance

PHONO (MM) 2.5 mV/47 kohms

CD/AUX, TAPE, VIDEO 150 mV/47 kohms

Frequency Response

PHONO (RIAA Standard

Curve) 20 Hz - 20,000 Hz...

±0.5 dB

TAPE, CD/AUX 10 Hz - 100,000 Hz...

+0, -3 dB

Signal to Noise Ratio

PHONO (MM) 73 dB

CD/AUX, TAPE, VIDEO 100 dB

Graphic Equalizer

Center Frequency 60 Hz, 150 Hz, 400 Hz,

1 kHz, 2.4 kHz, 6 kHz,

15 kHz

Control Range ±12 dB

Video Section

Inputs VIDEO 1, 2 1 Vp-p, 75 ohms unbalanced

Outputs

VIDEO 1, 2 1 Vp-p, 75 ohms unbalanced

MONITOR VIDEO OUT 1 Vp-p, 75 ohms unbalanced

FM Tuner Section

Tuning Frequency Range 87.5 MHz - 108 MHz

Antenna Impedance 300 ohms balanced &

75 ohms unbalanced

Usable Sensitivity 10.8 dBf (1.9 μ V)

50 dB Quieting Sensitivity

MONO 14.2 dBf (2.8 μ V)

STEREO 36.8 dBf (38 μ V)

Signal to Noise Ratio at 65 dBf

MONO 80 dB

STEREO 72 dB

Total Harmonic Distortion at 1,000 Hz

MONO 0.07%

STEREO 0.1%

Frequency Response 30 Hz - 15,000 Hz +0.5,

-2 dB

Stereo Separation 50 dB at 1,000 Hz

Selectivity 60 dB at 400 kHz

Capture Ratio 1.0 dB

Image Rejection Ratio 38 dB

IF Rejection Ratio 80 dB

Spurious Rejection Ratio 75 dB

AM Suppression Ratio 72 dB

AM Tuner Section

Tuning Range

530 kHz - 1,610 kHz (with the AM tuning interval set at 10 kHz)

Usable Sensitivity 10 μ V (400 μ V/m)

Signal to Noise Ratio 50 dB

Total Harmonic Distortion 0.3%

Selectivity 25 dB

General

Power Requirement 60 Hz, 120 V...USA &

Canada Models

Power Consumption 3.0A...USA & Canada

Models/200 W (Others)

AC Outlet Switched \times 3 (200W)

Dimensions (W \times H \times D) 420 \times 128.5 \times 321 mm

16-9/16" \times 5-1/6" \times 12-5/8"

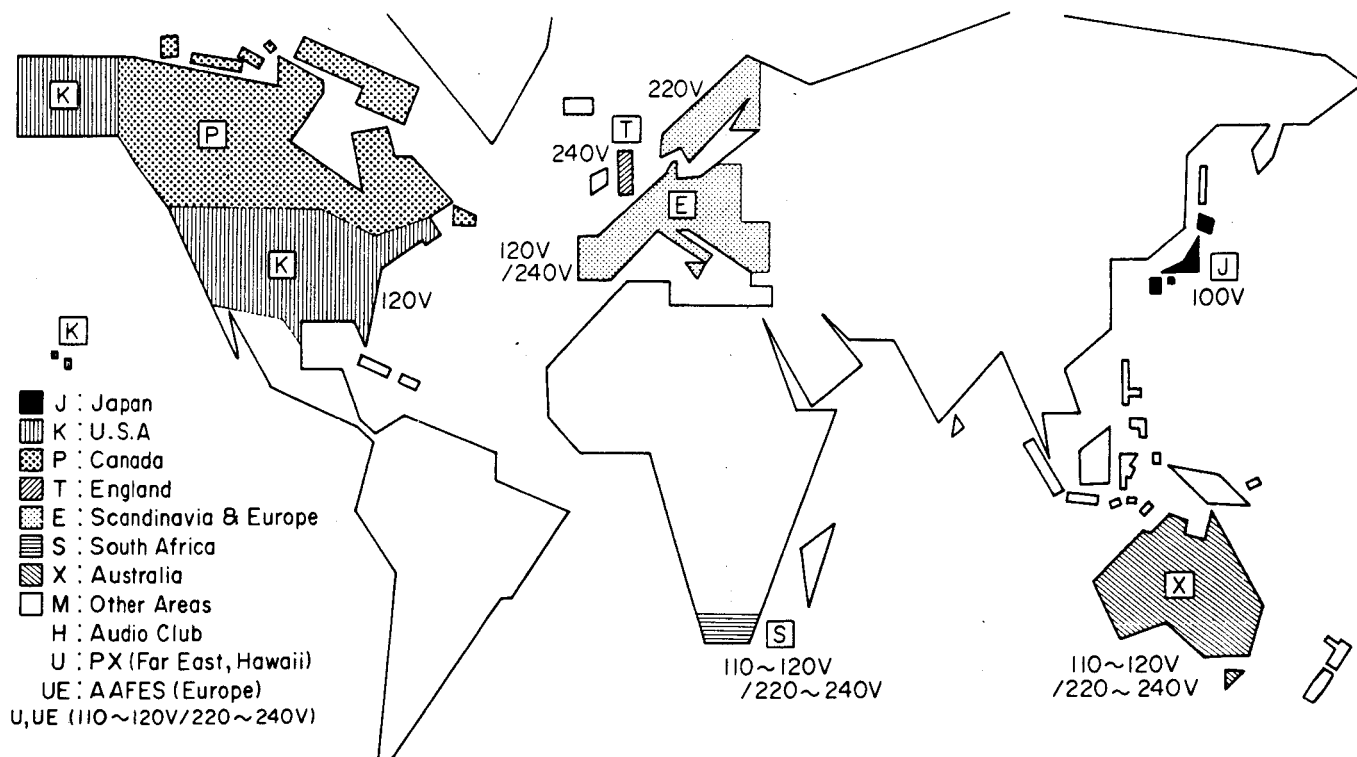
Weight Net 8.4 kg (18.5 lb)

Kenwood follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

Kenwood poursuit une politique de progrès constants en ce qui concerne le développement. Pour cette raison, les spécifications sont sujettes à modifications sans préavis.

Kenwood strebt ständige Verbesserungen in der Entwicklung an. Daher bleiben Änderungen der technischen Daten jederzeit vorbehalten.

WORLD MAP & AREA CODE



Note:

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the U.S. (K) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

TRIO-KENWOOD CORPORATION

Shionogi Shibuya Building, 17-5, 2-chome Shibuya, Shibuya-ku, Tokyo 150, Japan

KENWOOD ELECTRONICS

DIVISION OF KENWOOD U.S.A. CORPORATION

1315 E. Watsoncenter Rd., Carson, California 90745, U.S.A.

75 Seaview Drive, Secaucus, New Jersey 07094, U.S.A.

TRIO-KENWOOD CANADA INC.,

1070 Jayson Court, Mississauga, Ontario, Canada L4W 2V5

TRIO-KENWOOD ELECTRONICS, N.V.

Leuvensesteenweg 504 B-1930 Zaventem, Belgium

TRIO-KENWOOD ELECTRONICS GmbH

Rembrücker Str. 15, 6056 Heusenstamm, West Germany

TRIO-KENWOOD FRANCE S.A.

5, Boulevard Ney, 75018 Paris, France

TRIO-KENWOOD (AUSTRALIA) PTY. LTD. (INCORPORATED IN N.S.W.)

4E Woodcock Place, Lane Cove, N.S.W. 2066, Australia

KENWOOD & LEE ELECTRONICS, LTD.

Wang Kee Building, 5th Floor, 34-37, Connaught Road, Central, Hong Kong